Antiquity

A Quarterly Review of Archaeology

VOL. XIII No. 52 DECEMBER 1939

Editorial Notes

THE European War, which has already affected the lives and outlook of millions of people, presents problems to the Editors of ANTIQUITY, who for various reasons have had to consider what course they should take. At first the difficulties which were envisaged pointed to the present (December) number having to be the last of the series which began in March 1927, but after the most careful survey of all the possibilities and probabilities they decided to take courage, and at any rate plan for the year 1940. At the same time they are well aware there may be a risk of their hopes not being entirely realized.

This decision having been made, we would like to thank those of our Subscribers who quite spontaneously have written expressing in the most friendly terms their hope that ANTIQUITY will continue. They press the view that it occupies a place entirely its own, and that every endeavour should be made to avoid the gap which its end would leave for all who are interested in the subjects with which it deals. Admitted that such expressions are few compared with the number of our Subscribers, but we believe that *the majority of them will expect us to make the endeavour.*

One of the staunchest of our friends says it is of ' paramount importance that all *foci* of Culture and Learning should be kept alive ' during the present troubles, and with this we are in entire agreement. It seems to us it is right that ANTIQUITY should play its part in this effort, so that when Europe breathes freely once more, we may continue, with unabated strength, to represent what we consider an essential contribution to Learning and Progress.

Our reliance on the continued help and interest of those who have so wonderfully supported us since ANTIQUITY was established enables us to take this stand. It is only that which gives us courage ; without it we quite certainly could not continue publication. We should very much dislike to make any difference in the standard, size, or the quality of the illustrations which have won fame for our Review ; or change in any way the principles which have been maintained and have brought it to the position which it holds. The difficulties which now affect the production of such a journal as ANTIQUITY present financial problems which have to be carefully weighed. It is here that our Subscribers can fortify our decision, and this assistance can be given in more than one way.

First, we ask for early attention to the circular which will be found inserted in the present number (with the exception of copies posted to those who already have standing orders for payment of subscription). Those who are with us in the wish to add our service to Culture and Learning will show it by sending the subscription for the year 1940 as soon as it may be convenient. We do not as a rule post a reminder for payment until June, but under existing conditions it is most important we should know fairly closely how many copies of each number will be required. The restrictions on the use of paper make this very necessary.

Secondly, those who hitherto have not made use of payment by Bank Order would be giving the best help by doing so, and filling in that part of our circular. They save themselves trouble, and ourselves time and expense through not having to post statements.

From those who already have a standing order, but who for sufficient reason may need to consider its withdrawal (and we are of course fully alive to the pressure of the taxation which so many will feel), notice to this effect will be appreciated. At the same time we trust that ANTIQUITY will not be chosen as one of the victims of the recent Budget.

The courses mentioned will enable us to know approximately what our circulation for 1940 will be, and to avoid posting copies of the March number which are really not desired, though we earnestly hope there will not be many cancelled.

We have entered into these details in order to know where we stand. For our part, if we can meet our bills—which are by no means light—it is all we ask. The work which production involves is considerable, but so long as ANTIQUITY lives we are prepared for that, and shall do all in our power to keep the flag flying.

In due time the World will regain sanity, and much that makes life worth while will return, though we are aware that the inevitable outcome of the War will mean curtailment of many quiet pleasures.

The present number of ANTIQUITY has been planned so that it will include the usual particulars of the contents of our Volume, and an Index which is as complete as those which have preceded it. The only difference in size is a few pages less of text, which will balance the special cost of the additions mentioned.

One of the considerations which give some anxiety is the flow of contributions of articles and notes. Many writers for ANTIQUITY are on Active Service and have no present opportunity for such work. Material is essential for the life of the Review, and we hope it will continue to be offered for publication.

Anglo-Saxon Ship-burial in Suffolk

It was our intention, as we announced in September, to make the present number one of special importance by devoting it to articles dealing with the wonderful discovery earlier this year of the Saxon ship-burial and its treasure at Sutton Hoo, near Woodbridge, in Suffolk. The outbreak of War prevented this, but we now hope to publish several such articles in March. That number will therefore contain the first full and authoritative description of the greatest archaeological discovery ever made in Britain.

It is already well known that Mrs E. M. Pretty, the owner of the burial-site, has most generously presented the whole of the finds to the Nation. Eventually they will form a special exhibit in the British Museum. Mrs Pretty's gift means therefore that for all time the treasure of Sutton Hoo can be studied as a whole, and these magnificent examples of Saxon workmanship examined under the best conditions.

We take the opportunity of thanking those concerned with this unprecedented revelation of Saxon days, both for this exclusive privilege thus granted to us, and for their forbearance in consequence of the inevitable postponement. The articles will be illustrated by photographs of the objects of gold, silver and bronze, and other materials, together with others taken by one of the Editors during the excavations.

Rock-paintings from the Libyan Desert

An Appendix to Dr H. A. Winkler's 'Rock-drawings of Southern Upper Egypt II'[1]

by R. F. Peel

THE two volumes of rock-drawings from southern Upper Egypt collected by Dr H. A. Winkler, and published by the Egypt Exploration Society, together form a work of the utmost interest and importance to all interested in the archaeology and ethnology of North Africa. In the first volume, published in 1938,[2] Dr Winkler included a selection of the material collected from the deserts east of the Nile and from the Nile valley itself. In the second volume, just published, the drawings and paintings are all from the deserts west of the Nile and cover three main regions: first the edges of the Nile valley itself from Qena to Aswan; secondly the regions between the Nile and Kharga; and thirdly certain parts of the central Libyan Desert towards the extreme south-western frontiers of Egypt, in particular the mountain 'desert oasis' of Gebel 'Uweinat.

To visit this third and most inaccessible region Dr Winkler joined for a month the desert expedition organized early in 1938 by Major R. A. Bagnold on the one hand, and Mr O. H. Myers and the Egypt Exploration Society on the other, an expedition which the writer accompanied as surveyor and geographer. A general account of the aims and accomplishments of this expedition was given at a meeting of the Royal Geographical Society in January 1939, and will be found in the Journal of that Society for April 1939.[3] In brief, the combined expedition travelled from Armant in the Nile valley to Kharga, and thence south-westwards towards the Egyptian frontier until the great sandstone plateau of the Gilf Kebir was reached. A month was spent in detailed work on and around this plateau, the work including exploration and survey, archaeology, and a variety of geophysical and geological investigations. During a second month, in which Dr Winkler joined the party, the expedition proceeded to 'Uweinat, situated on the triple frontier

of Egypt, the Sudan and Italian Libya. The archaeological section of the party, comprising Mr O. H. Myers, Dr H. A. Winkler, Mr T. Gray and their assistants spent the greater part of the month in detailed work around the massif. Major Bagnold and the writer however made a separate journey during this second month, northwards along the western side of the Gilf Kebir and into the Sand Sea area to the north of it; and during this journey two rock-painting sites, which Dr Winkler was unable to reach, were visited and studied. One of these sites was previously known but, so far as the writer is aware, has never been fully published; the other was a new discovery. It therefore seems opportune at the time when Dr Winkler's account of the material at 'Uweinat, and at one site in the southern Gilf Kebir, has just appeared, to add this brief summary of the nature of the material at these two northern sites.

Previous Discoveries and Literature

Rock-drawings, comprising both engravings and paintings, have long been known from a number of localities in the Libyan Desert. Engravings were seen and recorded at 'Uweinat by the first explorer to reach it, A. M. Hassanein Bey, in 1923,[4] and almost every subsequent visitor has added to the list of known sites. Prince Kemal el-Dine, visiting the mountain in 1925–26, published new examples,[5] which were examined and discussed by H. Breuil.[6] Breuil had previously written on the examples found by Hassanein and pointed out the similarity of the drawings to those of the early Bushmen.[7] Major R. A. Bagnold recorded drawings from the northern wadis of 'Uweinat in 1930 and 1932,[8] and L. E. de Almasy found many more in the course of several visits to the massif. On one of these visits, in 1933, Almasy discovered the rich series of paintings in the grottoes of Ain Dua, on the southern side of the mountain,[9] a series which has since been studied in detail and published by L. di Caporiacco and P. Graziosi.[10] Further descriptions of the 'Uweinat drawings have been published by W. B. Kennedy Shaw in Antiquity[11] and the same writer has also published a general account of the massif.[12] An expedition sent out by the Cairo newspaper 'Ahram' in 1934 made a large collection of drawings and photographs of the 'Uweinat series, but this material has apparently never been published. Finally in 1938 Dr Winkler devoted a fortnight to the detailed re-examination of many of the known sites, and discovered a number of new ones, particularly in Karkur Talh, the large northern wadi where the bulk of the previous discoveries had been made, but

also in the southern wadi Karkur Murr following the discovery by Bagnold of a fine painted cave at the head of that wadi.[13]

Although in actual numbers 'Uweinat has proved by far the most prolific region for rock-drawings many discoveries have been made elsewhere. Almasy found interesting paintings, in the same style as those at 'Uweinat, at Gebel Kissu, an isolated granite mountain some 15 miles south of 'Uweinat, and also a few examples at Gebel Arkenu, a short distance to the west.[14] In 1932 Bagnold recorded similar paintings from Yerguehda Hill, a small basalt cone some 60 miles south-southwest of 'Uweinat.[15] P. A. Clayton, of the Egyptian Surveys, while engaged in survey reconnaissance in 1931, discovered faint engravings of giraffes in a small wadi on the western side of the Gilf Kebir in Lat. 23° 35′ N. Long. 25° 15′ E,[16] a wadi later named by Almasy Wadi Sora (Wadi Sura ; Wadi es-Suwar in Winkler, 1939). Exploring this locality in 1933 Almasy found other engravings, and nearby two caves rich in paintings, some of which he reproduced in his book.[17] This site was also visited by the 'Ahram' expedition. Finally, in the course of his long expedition of 1935, W. B. Kennedy Shaw recorded a new painted cave found by R. McEuen in a wadi near the southern extremity of the Gilf Kebir.[18] This site was visited by Winkler in 1938, and is recorded in his recent book as ' site 83 '.

Discoveries in regions surrounding this central part of the desert have been too numerous to record in full. Mention may just be made of the early discoveries of engravings at Gebel Tageru, Burg el-Tuyer, and to the north of Merga by W. B. K. Shaw and D. Newbold in 1927,[19] and of the material from northern Darfur recently published by A. J. Arkell.[20] Paintings similar in style to those at 'Uweinat were found in the hills east of Ennedi by Bagnold in 1932,[21] and have more recently been found in large numbers in the Ennedi Highlands by French explorers.[22] L. Frobenius has published various examples from different parts of the desert,[23] and the sites listed above have been discussed in many general works by such authorities as R. Vaufrey,[24] and L. Joleaud.[25] Recent years have witnessed the discovery of many sites in the section of the Libyan Desert under Italian control, but there is no space to refer to them all in a short article ; much less to attempt any list of the sites discovered in the French Sahara. Even the brief summary given above however, will indicate something of the profusion of the material already gathered from lands which less than twenty years ago were almost completely unexplored, and are still very imperfectly known.

Sites at the Gilf Kebir, 1938

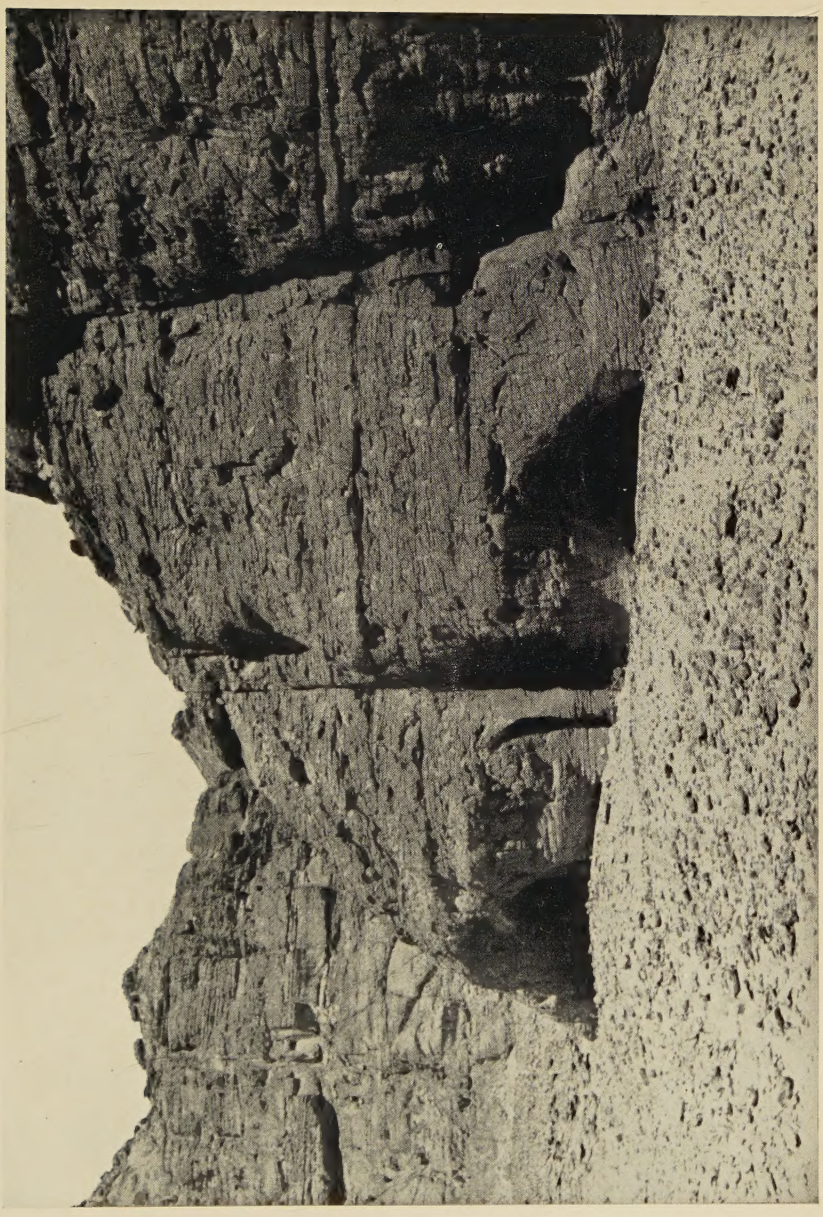
From the above account it will be noted that two sites of rock-drawings (paintings) were known at the Gilf Kebir prior to 1938; the caves of Wadi Sora on the west, and the abri discovered by McEuen and Shaw to the south. In 1938 our first month was spent on the eastern side of the plateau, and a careful exploration was made of almost all the wadis on that side of the southern part of the plateau, together with a considerable portion of its surface. Archaeological material in the form of artifacts, ancient dwelling sites, ancient tracks, stone circles, etc., was found almost everywhere in great profusion, but no trace of rock-engravings or paintings could be discovered. This absence of drawings from what was obviously a well-frequented region in early Palaeolithic and Neolithic times is perhaps largely to be explained by the nature of the rocks. The Nubian sandstones here are prevailingly false-bedded and relatively soft. Smooth faces are rare; caves and abris almost entirely absent. There are few places inviting artistic endeavour; fewer still where it would have any chance of survival. From the general circumstances indeed it seems probable that our failure to find any drawings along the eastern side of the Gilf is to be explained rather on the theory that drawings were originally present but have been destroyed, than that the ancient inhabitants never attempted to draw in this region, although drawing and painting so freely at 'Uweinat.

It is unnecessary to give a detailed description here of the work done at 'Uweinat, or of the new sites found there, as Dr Winkler has given full information in his book. The remainder of this paper will therefore be devoted to a brief account of the two sites in the northern part of the Gilf Kebir, visited in the latter part of the expedition by Major Bagnold and the writer. The first of these was the Wadi Sora site, first discovered by Almasy; the second was a new discovery made in the upper part of the Wadi Abd el Melik.

Wadi Sora (plates i–ii)

As indicated by Almasy in his book describing the discovery,[26] the paintings at Wadi Sora occur on the walls of three or four caves situated at the head of a short amphitheatre-like wadi some 3 miles south of the entrance to the main wadi. We found three such caves, but were only able to distinguish paintings in two of them. From their shapes, and other considerations, it seems probable that springs, issuing from the base of the cliffs, were instrumental in forming these caves. They are cut in sandstones rather different from the typical Nubian

PLATE I



PAINTED CAVES IN WADI SORA GILF KEBIR (*see* p. 392)

facing p. 392

PLATE II

TYPICAL PAINTINGS IN THE NORTHERN CAVE, WADI SORA

beds ; sandstones of a darker brown, and more massive in structure, which appear to dip eastwards under the typical Nubian beds that overlie them. As the writer has suggested elsewhere,[27] these beds may relate to the Palaeozoic sandstones distinguished by K. S. Sandford further west.[28] The point is immaterial in the present context, but the local presence of these massive sandstones, which are very like those in which the painted shelters of 'Uweinat are cut, would appear to have an immediate significance in explaining the presence in Wadi Sora of large abris containing paintings, while these features are so rare elsewhere around the Gilf Kebir.

Of the two caves found to contain paintings, that to the south (the right-hand one as one enters the wadi), has the smaller number and may conveniently be described first. As in both caves, the walls and ceiling have scaled badly, and only one group of paintings remains intact. About two dozen figures are shown, all of men and cattle, and all in dark red and white. The style is uniform and distinctive : it is that named by Winkler the style of 'balanced exaggeration' which is found at 'Uweinat, at Kissu, in the south of the Gilf Kebir, and in the Ennedi examples described by Passemard. The men have broad shoulders, narrow waists, triangular torsoes, exaggerated rounded hips, long and tapering legs and arms. Feet and hands are rarely shown, and the head is represented only by a round blob, sometimes however extended upwards into a sort of peak and having a beak-like projection in front. Almost all the men carry bows, some of single, others of double curve. Many are shooting, and an interesting feature is that some, at least, of the figures seem to be drawing the bow with the left hand. It is difficult to be certain on this point, as the figures may be interpreted either as facing the observer or as having their backs to him. No other weapons are shown, and no traces of clothing or decoration could be distinguished on the figures. They vary in size from about 5 to over 40 cms. tall. The cattle in this cave are drawn in the same general style as the men, having elegant tapering limbs and long thin tails. Horns could not be distinguished, but may have been in white and have faded. Some of the cattle have patterns of white bands on their sides, presumably to represent brindling. One or two smaller animals, which from their shapes appear to be calves, are shown in front of, and partly below the cattle ; and in one case a man is drawn beneath a cow and having one arm stretched out towards its udder. The udder is shown large and clear between the animal's legs. Cattle are drawn about 25 cms. long and 20 cms. tall.

In both subject matter and style, these paintings are essentially similar to many of those at 'Uweinat and the other southern sites, and are undoubtedly the work of the same people ; an early people of cattle-breeders whose life apparently centred around the cattle which they represented with such care, but who still used the bow and hunted game. Winkler has applied the term ' Autochthonous Mountain Dwellers ' to these peoples ; a name which invites some criticism since practically none of the Libyan Desert is truly mountainous and the term ' Autochthonous ' has implications which cannot be proved in this connexion. This is too broad a subject to discuss here however, and it must suffice to state that the paintings discussed from Wadi Sora are so essentially similar to those at 'Uweinat that they can unhesitatingly be ascribed to the same people. (FIG. 1).

The second painted cave contains a greater number of specimens, and some differences of style. Animals are shown, such as a few cattle, ostrich, dog, and ? giraffe, but the bulk of the paintings are of men. Owing to the extensive flaking of the sandstone and the crowding and superposition of the figures it is difficult to give any comprehensive account in a short space. Well over a hundred figures can easily be distinguished, although many are damaged, some by scaling of the rock, others by deliberate defacement ; the original number may well have been twice or thrice that figure. This cave stands some twenty yards to the north (left) of the first one.

Among the mass of figures some broad distinctions may be made. The elegant style of the previous cave is rare ; indeed may be said to be absent in its pure form. Most of the figures are rather crudely painted and some partly conventionalized. Very common is a style of male figure standing rather stiffly and facing outwards. Heads are mere round blobs, torsoes thick, limbs clumsy and hips narrow. Feet are indicated, but hands only on the larger specimens. Most of the figures are in dark red, but many, especially the larger ones, have decoration in white ; bands of white around the ankles, wrists, upper arms, and below the knees probably represent armlets, anklets and garters. Some anklets have a fringe. Larger figures occasionally have similar bands around the chest and loins in various patterns. Figures of this type vary in size from about 5 cms. to over 25 cms. tall. (FIG. 2).

Intermingled with these rather stiff and ungainly figures, which occur both singly and in groups, are many small figures in dark red without decoration, but in a variety of positions of movement and often grouped into a definite arrangement. In style these figures

FIG. 1. GROUP OF PAINTINGS IN SOUTHERN (RIGHT-HAND) CAVE, WADI SORA (*see* p. 393–4)

approach more closely to that of ' balanced exaggeration ', although they have not the elegance of the figures in the right-hand cave, and little anatomical detail is shown. The attitudes and groupings of these figures offer some intriguing puzzles, rendered the more tantalizing by the partial destruction of many of them. In one case (FIG. 3) a man stands upright (side view) with arms raised before him as though giving a blessing. On his head is apparently a large head-dress in the shape of an inverted cone with a tassel hanging from it. His mouth is shown open, and before him stand various small figures with arms outstretched or uplifted. The general impression is of some magico-religious

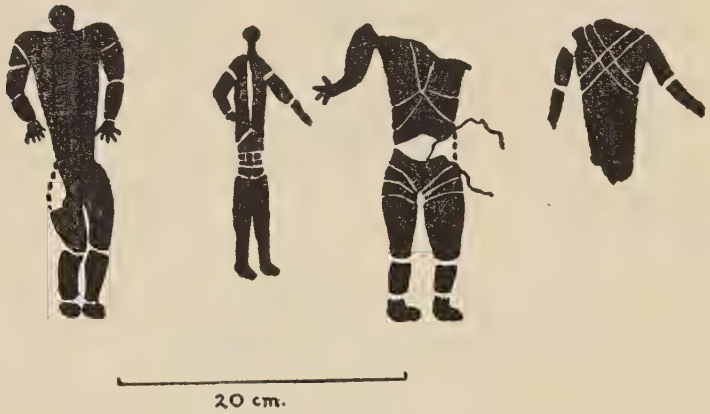


FIG. 2. LARGE DECORATED MALE FIGURES, WADI SORA (*see* p. 394)

ceremony involving blessing or absolution. In another case one figure, with arm outstretched before it, is leading by the hand another figure most obviously hanging back (FIG. 4). Groups of men running, and others shooting with bows are among the other representations.

Most puzzling of all however are a number of small red figures, seldom more than 10 cms. long, having a small rounded head on a thin neck, rounded body and long thin arms and legs with large feet, the arms being held together above the head, the legs curved backwards. These figures are scattered about, and in all orientations, but the attitude remains the same, and is one difficult to interpret (FIG. 5). Almasy, who copied and described some of these figures, terms them ' nageurs ', and the attitude is certainly strikingly reminiscent of that of a swimmer or diver. If this interpretation is correct it would seem to suggest either that pools of water large and deep enough to swim in existed in

this remote desert area when the cattle people occupied it, or that they had recently come from a well-watered region to one by contrast arid, and that the pictures were inspired by the memory and the contrast; the wish being father to the thought.

Among the other figures a few call for special mention. One isolated painting of a cow, in dark red with white belly and horns, is especially noteworthy for the skill and vigour of its execution (FIG. 6). Other animals represented include the ostrich, giraffe, dog and ? elephant. A few prints of hands were seen, drawn by stencilling round the hand held flat against the wall. No mutilations could be

FIG. 3. WADI SORA

FIG. 4. WADI SORA

distinguished such as are so frequently found in Spanish examples (FIG. 9). Paintings are mostly in dark red; some in white, a few in light red. A small number of figures in yellow are also present. Wherever superposition occurs, the yellow is on top, and seems therefore to be a late development. One group of yellow figures is interesting; a figure in dark red stands between two in yellow, with an arm outstretched to each. The yellow figure on the right is small, and may be a child. The grouping may of course be accidental; but, if not, the group may be intended to represent a union between two different groups, or even a marriage, although there is no indication of sex in any of the figures.

One final type of figure is of particular interest. It is the conventional representation of a man by an oval from which depend two thin legs (FIG. 7). A number of these figures were noted, all in the prevailing

dark red, and all of similar technique. The style is interesting in that so far as the writer is aware it has not been found elsewhere in the Libyan Desert; the nearest analogy is perhaps the 'figure-of-eight' men found by the Hon. Francis Rodd on the rocks of Aïr.[29] The Wadi Sora figures are not the same; they lack the skirts, arms and other details of the Tuareg examples, and are less stiff in execution, yet there is a slight resemblance: not sufficient for the claim of any connexions, but worth noting with an eye on future discoveries in the intermediate region.

Space forbids a more detailed description of this fine series of paintings, but a few general remarks may be made. The profusion of

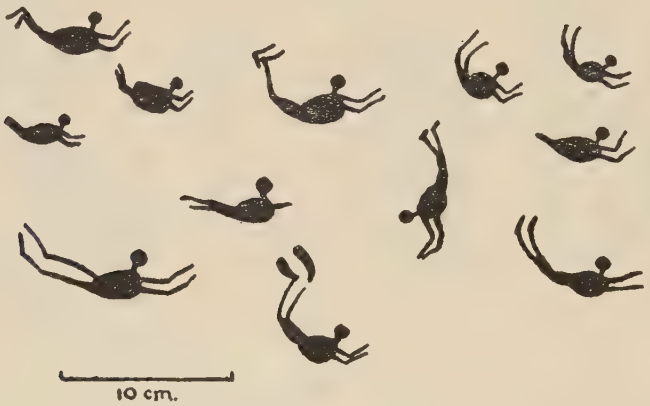


Fig. 5. TYPES OF 'NAGEUR' FIGURES (*see* p. 396)

the paintings suggests a long period of habitation of this cave, as does the frequent superposition and the variation in styles and subjects. The differences of style are scarcely great enough however to support the idea of occupation by a succession of different peoples, and in general the paintings do not differ in any important respect from those at 'Uweinat. They can, for the most part at any rate, be safely ascribed to the same general group of cattle pastoralists, although the relative absence of cattle among the paintings of this cave is somewhat surprising. Details of dress and decoration are in harmony with those noted by Winkler at 'Uweinat, and add little that is new. It is of interest to note that in addition to the destruction wrought by scaling of the rocks, a large number of the paintings have been deliberately defaced by scraping. Some of these defacements, as judged by patination, look

relatively recent, but many are very old. Winkler has suggested[30] that such defacements were inspired by spite and resentment, with the implication that the drawings represented certain definite individuals. As against this theory it may be worth noting that here very often whole rows of figures have been uniformly defaced (FIG. 8). which would

FIG. 6
COW IN DARK RED AND WHITE

FIG. 7
FIGURE-OF-8 DRAWING

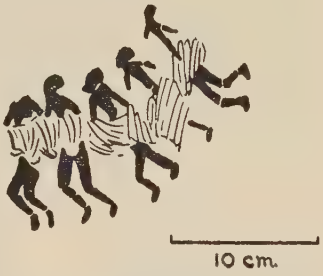


FIG. 8
ROW OF DEFACED FIGURES

FIG. 9. HAND OUTLINE, OSTRICH AND HUMAN FIGURES

not be likely if the resentment was only aimed at certain individuals. The defacements are generally limited to the torso and loins, and may have had some motive of sympathetic magic behind them.

Before leaving these caves, a search was made of the floors (without attempting excavation in the absence of implements and expert advice). Crude flakes of silicified sandstone were common, as were many split fragments of quartzite. Pieces of ostrich egg shell, some burnt, others

bored for beads were present, and in one spot Major Bagnold found a collection of pieces of yellow and red ochre and white clay which may have been the very pigments used by the artists.

Wadi Abd el Melik

The Wadi Abd el Melik, one of three long wadis in the northern part of the Gilf Kebir which contain trees and grass, was also first discovered by Almasy, in 1932, and has since been claimed by him as the site of the famous ' lost oasis ' of Zerzura.[31] It would be out of place here to discuss the pros and cons of this claim ; an admirable summary of the problem has already been given by Major Bagnold.[32] In 1938, after studying the Wadi Sora caves, Major Bagnold and the

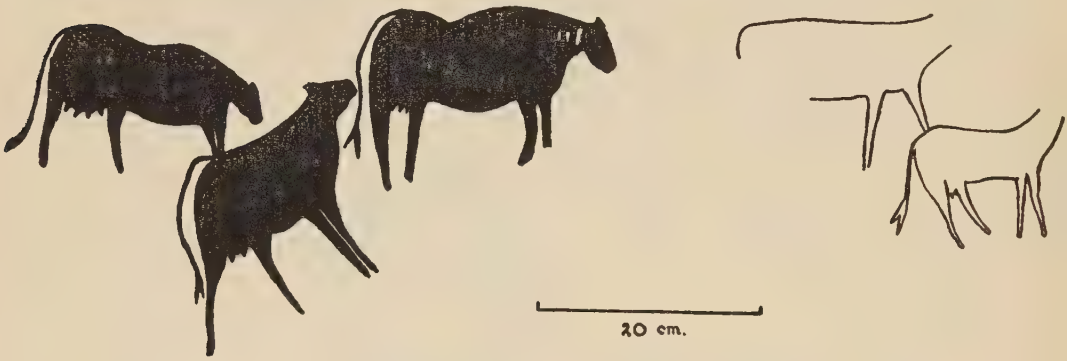


Fig. 10. CATTLE IN DARK RED (LEFT) AND WHITE (RIGHT), WADI ABD EL MELIK

writer proceeded to the upper parts of Wadi Abd el Melik to search for a well of which Almasy had been informed by natives, but which he had been unable to find. Three days were spent in a laborious and unsuccessful search for this well in the upper reaches of the Wadi, but as the search was being abandoned the writer by chance entered a small grotto in the wadi side and noticed very faint paintings on the wall. The grotto is very small—only some ten feet wide, and scarcely deeper—and is situated on the eastern side of the eastern branch of Wadi Abd el Melik, about ten miles above the main fork. Paintings were found on both walls, but all so faint and dust-covered that they had to be moistened from our water-bottles before they were distinct enough to be photographed. All the paintings so shown were of cattle, save for one doubtful dog. They varied in size between 15 and 25 cms. long, and were in dark red, red and white, and white only. In style

they were almost identical with those in the southern (right-hand) cave at Wadi Sora, and with many 'Uweinat examples; udders being large and painted between the legs, horns absent or small. About ten figures in all were seen, but there were probably many more which shortage of time—and of water—prevented our finding (FIG. 10).

In view of the limited subject-matter, nothing new could be learned from these paintings; their authors were evidently the same cattle-people as those who inhabited 'Uweinat for so long, and the significance of the discovery lies mainly in its evidence of their presence in these northern wadis, and the consequent increase in their known range. In view of the fertility of these northern wadis, and Almasy's claim that they are to be identified with Zerzura, it is probable that a careful search would discover many more sites in this neighbourhood in spite of the rarity of good shelters. It is sincerely to be hoped that fully qualified archaeologists will indeed conduct such researches before the region becomes too frequented and many invaluable paintings are destroyed for ever, for all surviving examples of this early art must be found and studied to the full before any final conclusions can be pronounced as to the identity, origins and relationships of these early cattle-peoples.

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The Relics of Saint Petroc

by Canon G. H. Doble

THE incident of the theft of the relics of Saint Petroc from his shrine in Bodmin priory church by a canon of Bodmin in 1177, their removal to the abbey of St.-Méen in Brittany, and their subsequent restoration owing to the vigorous action of Henry II, is well-known. It is briefly referred to by the chroniclers Roger of Hoveden and Benedict of Peterborough. The long *Vita Petroci* in the newly discovered Gotha MS.,[1] however, contains a full and detailed account of the whole affair by a contemporary writer of considerable literary powers. It abounds in lifelike touches, and is one of the most interesting glimpses into the social life of the Middle Ages which we possess. It is here printed for the first time.

The author, Robert de Tautona [or, Tantona], may have accompanied the prior of Bodmin on his voyage to France. He seems to have been a Devon man; North Tawton in Devon was spelt Tauton in the twelfth century. The story was evidently written down soon after the events described, while they were still fresh in the memory, but the words *postea autem archiepiscopo Rotomagensi*, unless they are an interpolation, show that it was after the appointment of Walter of Coutances to the see of Rouen at the end of 1184. On the other hand, it was apparently written before the death of Geoffrey Plantagenet, son of Henry II, on 19 August 1185, as the author mentions him, without saying that he was no longer living.

De Corpore Sancti Petroci Furtato et Restituto

(folio 145)

A certain canon of Bodmin [Bothminia], named Robert of Tauton [or, Tanton], has written the story of how the body of the blessed Petroc was stolen by a certain Martin, a canon of the church of Bodmin, and carried by him into Brittany [Brithannia], and how the same body was brought back again to Bodmin. He says therefore as follows:

For several months we were ignorant of the fact that the body of Petroc, the most holy Confessor of Christ, and our Patron, had been,

[1] Ducal Library at Gotha, M.n. 57. This manuscript, of English (West country) origin, contains nearly 50 lives of English and Cornish saints. It is of the 14th century, but most of the lives it contains are older. The *Vita Petroci* appears to be of the 13th century.

as a punishment for our sins, sacrilegiously removed and carried to a foreign country.[2] Having been therefore transported into Brittany to the Church of Saint-Méen,[3] according to the good pleasure of God and His most holy confessor its presence was revealed by miracles, and after its sanctity had been thus demonstrated it was exalted [or, elevated] with the greatest honour, and placed [in a shrine] with every mark of reverence. So the report of these doings having spread throughout the whole province, the news reached the ears of the Lord Abbot of St. Michael in Peril of the Sea [*de periculo maris*]. And some of his monks, who had been dispatched into England on the business of the Abbey, being also informed of these things, by God's providence it occurred to them to go to Bartholomew, the Lord Bishop of Exeter, and tell him about it. The Lord Bishop was both amazed and deeply grieved at what he heard. So, desiring to verify the truth of the report, he first questioned Roger, our Lord Prior, who happened at that very moment to have come to see him on business of his own, and who would be obliged to go on afterwards to the King's Court. As the Prior had no certain information on the matter, the Bishop sent the Abbot of St. Nectan [*i.e.* Hartland] and the Abbot of Buckfast [Bucfest'a] and the Lord Prior of Launceston [Lanstonia], with the Prior of Tavistock [Tavistoke] to Bodmin, that the shrine [*teca*] in which that most holy body had first been placed might be opened in their presence, and so the truth might be ascertained. Now when this loss was thus discovered, our grief, our groans and sighs at our misfortune, may be better imagined than described. There are some perhaps who think that events like this are due to chance, against whom Job says, ' nothing is done on the earth without cause ' (Job v, 6, Vulg.). And we are to believe that nothing which is done is done except by the ordinance of God, sometimes manifest, sometimes hidden, but always just. For ' all things were made by Him, and without Him was nothing made ' (John, 1, 3). For in this matter which we have begun to narrate it is evident how beneficently, how mercifully the Lord used the wickedness of this sacrilegious Martin to the glory and honour of S. Petroc. For he who before was barely known and honoured among his own people in Cornwall only, was now extolled and exalted among kings and princes throughout the whole world.

[2] In margin : *De Sancto Mevenno, qui est in Britannia.*

[3] *Sancti Mevenni.* Mevennus is the eponym of the important abbey of St.-Méen in the diocese of St.-Malo in Brittany, and of the parish of St. Mewan in Cornwall.

But since we have digressed a little, let us return now to the task we have begun. This Martin, our brother in name only, because he was a sacrilegious wretch and possessed with a devil, was subject to melancholy and the spirit of *accidia*, and in consequence begged the Prior to [find him some occupation which would] give him relief. To cut a long story short, the Prior sent him to Devon, to our *villa* which we have there, named Newetona [*i.e.* Newton St. Petrock], to see that it was properly cultivated. But he behaved himself there maliciously and in a disorderly manner, so the Prior recalled him, and put him under discipline in the monastery. Furious at this, Martin sought diligently how he might avenge himself. Then the devil put into his mind the idea of committing a sin wicked above all others, namely to steal the body of our most holy patron Petroc, carry it away, and alienate it permanently, so that our house, thus destitute of its patron, might be entirely ruined. So he sought and found an opportunity, and took the aforesaid body out of the shrine, where he knew it had been previously placed by the hands of Bartholomew, Bishop of Exeter,[4] and departed, and sought a distant land, carrying with him his sacrilegious plunder. Having escaped [from Cornwall], he crossed the Channel, and arrived at the Church of St.-Magloire,[5] where he was received with more honour and kindness than he deserved. That same night there shone a light from heaven upon the ark (*arcam*)[6] in which those relics were enclosed, some of those in the guest-house seeing it and marvelling at it, though as yet they knew nothing of the matter. So this sacrilegious wretch, condemned by his own conscience and fearing to be detected, early in the morning hired a horse to go on to Saint-Méen. He proceeded till he reached the ford called Cagarun,[7] which they say can be

[4] This seems to show that the relics had only recently been translated to a new shrine. The building of the priory church on a new site had been begun by Bishop Warlewast (d. 1138). It was probably only just finished, and the shrine of S. Petroc may well have been moved from the older church on the site of the present parish church shortly before 1177. This statement is therefore of great importance for the history of Bodmin priory. Martin stole the relics just after the Feast of the Epiphany (6 January) 1177.

[5] *i.e.* the abbey of St.-Magloire at Léhon, a suburb of Dinan.

[6] Presumably this means the place where the relics were resting, as, a few lines lower down, we are informed that they were carried in a sack.

[7] The initial may be either a C or a D, the last syllable might be *rim* or *rnu*. As the road from Dinan to St.-Méen crosses the little river Garun, a tributary of the Meu, shortly before reaching St.-Méen, this lost place-name would seem to belong to a forgotten ford at that point. Such 'splashes', with a foot-bridge close by, are common both in Brittany and in Cornwall.

crossed by any beast. The man from whom he had hired the horse he was riding bade him go on without hesitation, and he savagely whipped and spurred him till he drew blood, but in vain. Then the apostate, seeing that the horse refused to move, condemned by his conscience, suspected that this had happened by the will of God, on account of his irreverence towards the holy relics, which he was irreverently carrying behind him, and he dismounted immediately, unfastened the sack in which the relics were, and carried them over the foot-bridge close by; returning as quickly as possible to his horse, which he had meanwhile committed to his guide. Then he remounted, and passed the ford without difficulty, and thus, speaking little, but perchance thinking a great deal, he arrived at St.-Méen, where he was received at the guest-house [of the abbey], and returned the horse to its owner, paying him the charge due for its hire. The latter returned home, while he himself waited there till he should be summoned by the monks to dinner. When the hour for dinner arrived, he was called, with the other guests, to go and eat. So, being called, he hung his bag (*sacculum*) on to a certain beam in the guest-house, and committed it to the care of the boys whose duty it was to look after the said guest-house, and went in to eat, with the boy who had come with him on his journey. Meanwhile the boys just mentioned were regarding the bag with great interest, and touched it in turn with their hands. Feeling it, they found it contained bones, and wondered, saying, 'What can it be'? And one of them, more enterprising than the rest, approached the bag and partly unsewed it, and took out a rib, which he and his companions handled, amid general laughter, when, lo! their hands began to swell and their arms became rigid. Thus punished for their audacity, they ran and told the monks who had the charge of the outer court, showing them their hands and arms, and relating how they had suffered for touching those bones. The monks, divinely led to recognize something miraculous in what had happened, at once accosted their guest Martin, and questioned him closely about the object of his journey, asking what those bones were which he was carrying about with him, the touch of which had so injured the boys. Confused and terrified, he told them truthfully why he was travelling, and confessed that the bones were relics. The Lord Abbot was sent for, together with the chief personages of that Church, and before them he made a full statement, saying that it was the body of the most holy confessor Petroc which he had brought with him, and to remove all doubt he confirmed the same with an oath. After hearing this, the Lord Abbot straightway gave

orders for a procession to be formed in festal array, and for the relics to be solemnly borne, with the song of hymns and canticles, from the guest-house where they were, to the church, where water sanctified by contact with them was kept, at the request of the people, to benefit the sick, by the grace of God and the merits of His Confessor.

But that most wicked of men, seeing himself everyway detected, proceeded at once to the Lord Rolland of Dinan (Dyneham), who was ruling over that country, and was Viscount [*i.e.* representative] of the Lord Geoffrey, son of the King of England [and] Count of Brittany, and, in the wickedness of his heart feigning simplicity, earnestly asked for an opportunity of speaking with him. Having obtained this opportunity, he sought to persuade him that he had brought with him to Brittany the chief of the Saints of Cornwall for the advantage and high honour of his lord the Count of Brittany, because Cornwall lawfully belonged to the same Count, and therefore he had, with great respect, handed over the chief of the saints of that country, viz. Patroc [*sic*], at St.-Méen, in the dominion of the said Count ; vehemently asserting that, if the body of the most holy Confessor were prudently and diligently kept there, the whole of Cornwall would soon be subject to the County of Brittany [which belonged] to his lord the son of the King of England.[8] Now the reason for his trying wickedly to make him believe this, was that if an attempt were made to bring back the relics, he [Rolland] might strive with all his power to retain them, out of fidelity to his lord the Count and for the benefit of the whole country. And he made this wicked suggestion, not that he cared at all for the benefit of that country, but because he was a sacrilegious robber, and wished by this cunning device to alienate those relics from our Church in perpetuity. But ' there is no wisdom, nor understanding nor counsel against the Lord ' [Prov. xxi, 30]. Let us now return to the events which followed these things.

When therefore the fame of the mighty works and miracles which God worked for the honour of His holy confessor Petroc was spread abroad, there flocked thither the sick and the diseased, as usually happens in such cases, among whom were the boys whose hands and arms swelled and became rigid because they had before irreverently touched those relics—they were the first to come, praying and weeping, and asking with most earnest devotion that their hands and arms might be sprinkled with that holy water, confessing and firmly believing that

[8] On what political situation the subtle intrigue suggested by Martin may have been based we do not know.

in this way they could be cured, by the merits of the most holy confessor Petroc. So the monks, perceiving in the faith of those who made the request the efficacy of his petition, sprinkled them in the name of the Holy Trinity. And falling on their faces, and praying humbly before the relics, after a short interval they were completely cured.

Also a certain demoniac was brought one day by his relatives and friends, who, humbly and with great devotion, asked that in God's name they would give him some of that water to drink. And those who had the custody of the relics gave the holy water, in the faith of those who made the petition, to the demoniac to drink. After drinking it, he fell asleep, and when he awoke he was freed from the power of the demon, and gave praise to God.

Also a sick boy, who was able neither to live nor to expire, but suffered terribly in a prolonged agony, was brought to the place where the relics were, and his relatives asked that at least a drop of this water might be given him to drink, that so God, by the merits of His Confessor, might hasten whatever might be His will concerning him. And after tasting that sacred water, the boy's soul passed to the Lord. By these and other miracles the fame of this most holy body grew, till the news of its having been stolen from us reached, first, the Bishop of Exeter, and then us through him. So when we were informed of what had happened, we immediately sent our brother John, a monk of proved merit, on a voyage to Brittany, to find out in what province, and in whose jurisdiction, and in what church the body was detained, and for our Lord Prior, who was then at the Court of the King, we made a statement of the case by letter. Next, through our brother Adam, a monk of long standing and high character, we reported what had been done to the Lord Bishop, then at Exeter (although he knew it before we did, as we have said already), praying him in the Lord and beseeching him to make every endeavour to secure, by order of the Lord King and the assistance of the chief men of England, the return of these relics which had thus been stolen.

The greatness of the sacrilege committed against the body of the most holy confessor Petroc of Bodmin being now detected, and the fact of its removal to Brittany being made clear by many proofs, the Lord Bishop of Exeter, accompanied by his familiar friends, viz. Richard de Luci and Master Walter of Coutances, the King's *sigillarius*, afterwards Archbishop of Rouen, went humbly to the King, devoutly petitioning him, for the love of God and for the salvation of his soul and of the souls of his family, to send letters to Brittany, which

IVORY CASKET AT BODMIN

Believed to be the Reliquary in which the bones of Saint Petroc were brought back from St.-Méen, in Brittany

facing p. 408

was then under his suzerainty, and order these relics to be sent back. So the King, perceiving the humility and devotion of the bishop and of those who joined with him in the request, sympathizing with their grief, inclined his ear to their petition. Wherefore he immediately granted what the Bishop and his fellow-helpers desired, and the King sent for the aforesaid Walter, his *sigillarius*, and commanded him to further the Prior of Bodmin's cause by writing to the prelates and chief men and officials of Brittany, commanding them that wherever in their country these relics were found they were to be returned without delay, adding that he was sending with the Prior his own messenger, who would confirm by word of mouth the order contained in the letter. So Master Walter, the King's *sigillarius*, rejoicing in what had been said unto him [Ps. CXXII, Vulg.], and at having received this mandate, departed at the first opportunity, and as he came out he met a certain one-armed man[9] carrying an ivory casket which he was offering for sale. He felt that this was providential, and he bought the casket for the use of S. Petroc and ordered it to be taken with him, but considering it as rather fragile he took care to have another one made of wood, at his own expense, lining it with felt to protect the ivory casket, which he placed inside it. He then took council with the Bishop of Exeter, and the Prior of Bodmin and the other servants of the church of S. Petroc, as to the best way of drawing up the letter containing the King's orders concerning the relics, and directed the exact form of words they chose to be made out by the scribes. So the Prior, having received the King's letter, and those of his son the Count of Brittany, and of the Lord Richard, Archbishop of Canterbury, and of the Bishop of Exeter, and of the same Master Walter, the King's *sigillarius*, taking the casket thus prepared and the estimated expenses of the journey, accompanied by the King's messenger, having received the Bishop's blessing, set out to cross the Channel. After a calm passage with favourable winds he arrived at Coutances, where he was hospitably entertained at the expense of Master Walter. He now began to be worried and anxious about our brother John, who, as we have said already, had crossed the sea [before him] on this business. Now it came to pass that a certain boy who was travelling with the Prior happened to be in the market-place seeking for something he wanted, when, looking up, he saw that very brother John in the street searching for a lodging. As soon as he saw him he suspected (by God's indication)

[9] or, 'mutilated man' (*emanco*, in French *manchot*).

that he was the one about whom the Prior was so anxious, and he addressed him, asking what he wanted and where he came from, adding, ' Are you not the person who is seeking for the relics from Cornwall ? ' The other answered, ' I am, but I have no lodging, and am trying to find one '. ' Come with me ', said the boy in a delighted voice, ' and I will bring you to your Prior '. There was great joy on his arrival, and they all glorified God for what had happened, feeling that it was His providence which had led to this fortunate meeting. Soon after this the Prior had an opportunity of speaking to a certain Canon of Coutances, the Lord Nicholas, a relative of Master Walter the Lord King's *sigillarius*, and talked to him about their journey. The Lord Nicholas courteously answered, ' I will myself accompany you on your journey, and will bring you speedily, if God will, by the merits of your holy father Petroc, to the Church of St.-Méen, where your relics are being kept '. Having made this arrangement, next morning they set out for St. Michael in Peril of the Sea, where they were received with honour and hospitably entertained. The Abbot,[10] after reading the King's letter about the matter, sent one of his monks, an active man, named Robert, to journey with them in his place, as he himself was not enjoying his usual good health. They left [the Mount] immediately after lunch, and proceeded by easy stages, so as not to tire their company too much, visiting on their way the bishop-elect of Dol,[11] and other prelates and nobles to whom the King of England had addressed letters containing his commands concerning these relics, giving to each the royal missive intended for him, till at length they arrived at Dinan (Dinam), and enquired for the lord Rolland, who ruled over the [whole] country, and was the King's minister. Not finding him, they stayed there that night, and continuing their journey next day they passed by the village (castellum) of Léhon and spent the night at a certain hamlet (rus) called Caulnes (Calna). From thence they went on to the church of St.-Méen, alighting at an inn in the town, since the monks refused them hospitality.

[10] The celebrated Robert of Torigny, Abbot of Mont St. Michel from 1154 to 1186. He was not often *debilis :* the greater part of the present abbey buildings were constructed by him.

[11] His name was Rolandus. Elected Bishop of Dol in 1177, he succeeded Bishop Johannes, who died 27 January that year. He was not consecrated till 1184, which seems to have been (as we have already suggested) the date of the composition of Robert of Tauton's work.

Now when the Prior and his party entered the church to pray, a globe of fire in the shape of a helmet descended upon the church, in the sight of all who were in the market-place. But the Prior perceived that his presence and that of his party was viewed with suspicion by the monks, and, after conferring with the others, they all returned to Dinan the very same day. From thence the monk Dom Robert and Nicholas the Canon of Coutances returned home. It was the vigil of Pentecost. The others, after their return to Dinan, stayed there quietly until they were able to communicate with the Lord Rolland by sending to the place where he had gone. Rolland meanwhile had heard about the whole affair from a messenger whom he had sent into England to the Lord King on his own business, and who had just returned, and learning that the Prior of Bodmin was already come to Dinan with the Lord King's commands to him, he summoned Geoffrey of Montfort (*Gaufrido de Munfordia*), who was the *advocatus et dominus* of the monks of St. Méen, and consulted with him as to the best way of quietly settling the matter. Meanwhile the Prior of Bodmin, hearing that Rolland and Geoffrey of Montfort were at St.-Méen, for he had sent for him [*text imperfect*] they took with them the Abbot of Léhon, a learned and prudent man, and joined them there, and, as soon as they had opportunity, presented the orders of the Lord King. Rolland and Geoffrey, having listened to their story, and seen exactly how the matter stood, received them with honour and entertained them courteously. Then they sent them, accompanied by the Abbot of Léhon and other capable persons, to the Abbot of St.-Méen and his monks, with the letter from the Lord King, ordering them peremptorily to hand over those relics to the Prior of Bodmin and his brethren. To cut a long story short, the monks, though with great reluctance, after making many attempts at evasion and putting every obstacle in the way, at last placed the body of the most holy confessor our father Petroc, upon their high altar, and there, in the presence of the venerable Abbot of St.-Magloire and of the barons, viz. Rolland and Geoffrey of Montfort, and of many others who had come there for that purpose, permitted them to take it, the Abbot and the sacristan of the same church placing their hands on the holy gospels and swearing that they were the same relics, whole and entire, which the sacrilegious Martin had brought there. The Prior and his brethren approached, and, carefully examining them, recognized them by many signs [as being the genuine relics], and had no further doubts about the matter. Opening their ivory casket, they found that, by God's dispensation, it happened to be marvellously adapted for

receiving those holy bones, being just the right size, neither too big nor too small. After they had been placed therein, the Lord Rolland of Dinan approached, and with the greatest reverence handed them over thus enclosed to the Prior of Bodmin, with a letter, to be taken to the King of England at his own expense. Then, in testimony to future generations of what had happened, he sent his own letters patent to the church of Bodmin to be preserved there.

So the monks of St.-Méen, seeing themselves totally deprived of these holy relics, inwardly touched with compunction, confessed with tears that the Lord had, by the merits of this His Confessor, worked XIV undeniable miracles in their sight since these relics had been solemnly received in their church. And when the relics had been laid together, and, with the greatest respect, enclosed in the shrine, as has been said, the Prior of Bodmin and his party, their spirits refreshed with holy joy, arranged the same day with the barons aforesaid to begin the return journey. Not to linger over details, suffice it to say that they went forward day by day, bearing the ark of their lord in triumph, in many places received with great ceremony, amid processions both of monks and of clergy, and good success everywhere attending them. They sailed for England, and having arrived at the city of Winchester, after two days they met Master Walter, their counsellor and protector and the King's *sigillarius*, who received them courteously and gave them the kiss of peace, and, rejoicing in their success, showed them every mark of kindness. Later, when the King had come, they sought for an opportunity of speaking with him, and this having been, by God's grace, obtained, and a suitable place and time chosen (thanks to the good offices of Master Walter), they came into the presence of the Lord King with their relics. They handed him the letter of the Lord Rolland of Dinan and of the other notables of Brittany to read, as evidence of what had taken place. After he had read it, the king, in the presence of his Court, which was unusually numerous, as a council of prelates and nobles had been summoned, ordered the casket to be opened. This was done, and when the Lord Bartholomew, Bishop of Exeter, had opened it, they saw that treasure, ' more precious than gold and the topaz ' [Ps. CXIX, 127, Vulg.]. At the sight thereof the King, and all his court with him, humbly prostrated themselves and venerated the body of the most holy confessor Petroc. After a short interval, he received in all simplicity at the hands of the Bishop of Exeter a benediction with the head of Saint Petroc, and after gazing with great reverence at all those sacred bones, he retained for himself three joints,

first humbly asking permission to do so from the Bishop of Exeter and the Prior of Bodmin, and also a rib, which he enclosed with fitting honour in a silver case, and sent it to St.-Méen.[12] Then, after prayer, he closed the casket with great devotion, and offered a valuable silk pall, cunningly embroidered, to shroud the relics. After this, the Prior of Bodmin and his party, who were in charge of the relics, on the first opportunity, after obtaining permission from the Archbishop of Canterbury and the other bishops and having received their blessing, set out to return home and advanced by easy stages to Exeter, where they were received with great respect in the Church of the Episcopal See, and committed the relics to the protection of God and to the care of the secretary[13] of the same Church, waiting till it should be convenient for the Lord Bishop to honour the ceremony of their solemn return home with his presence, as he had intended. As soon as he was free, the Lord Bishop came, and a procession was formed in festal array, all the inhabitants of the city joining in it, and the Bishop led the relics forth outside the city with hymns and spiritual songs. After a short sermon to the people there he gave them his blessing, and the people returned to their city. Meanwhile the Bishop continued his journey to Cornwall, accompanying the relics, and arrived at the church of Launceston [Lanstanatuna], where the Prior of the same church[14] and his brethren came in festal procession to meet the relics with due honour, as their membership of the Order [of Saint Augustine][15] required, and received them with joy and exultation, and kept vigil before them all night [in their church] with prayer and great devotion. In the morning a procession was formed, in which the people [of the town] joined, and the Prior of Launceston and his brethren escorted the relics and their bearers with great ceremony, as was meet. And when they had come to a certain place [outside Launceston] which had been fixed on beforehand, they received the Bishop's blessing, and returned to their church, and the Lord Bishop and those who were with him continued their journey to Bodmin. As they approached, the Convent of Bodmin went forth to meet them in a procession as magnificent

[12] Documents of the 17th and 18th centuries relating to the Abbey of St.-Méen show that the Abbey then claimed to possess St. Petroc's head.

[13] *sic*, a slip for ' Sacristan '.

[14] The priory of St. Stephen's at Launceston.

[15] Both Bodmin and Launceston Priories belonged to the Order of Regular Canons of S. Augustine.

as they could possibly make it, and with them the chief personages (*optimates*) of almost the whole of Cornwall, both men and women, accompanied by a crowd of people of both sexes which could not be numbered. And when they drew near to the church, the Lord Bishop made a station, and preached to the people, briefly informing them of all that had happened, and promising to exhibit the relics next day, that all might see them, and so they carried them into the church that day with a joy and honour that cannot be described, and placed them with great reverence on the high altar. The night was passed in rejoicing and spiritual gladness for the coming of so great a father. Next morning, after divine service, the people having come together, the Lord Bishop proceeded to do what he had promised the day before. First, he took out of the casket, with the greatest attention and respect, the head of the most holy Confessor, and then the other bones, and showed them openly to all the people. Afterwards he ordered to be read in their hearing the King's letters patent, and those of the Lord Rolland of Dinan, and his own, and those of the notables of Brittany, witnessing that there was no fraud, nor any diminution of the relics. He proceeded to give the people a few words of exhortation, and then he divided the relics, as he had previously determined, placing the head, with the bones nearest the head, and certain fragments, in the ivory casket, while all the other bones he caused to be enclosed in the great gilded shrine, in his presence and in the presence of all the congregation. Silence was then called for, and the Bishop relaxed 40 days of that year's penance to all who had come together in honour of this most holy Confessor, or should do so down to the Feast of All Saints. And in future, on the day when this solemnity is celebrated, and for eight days after,[16] he granted for ever an indulgence of 20 days from the penance enjoined on them, to all who should piously and with devotion come to this solemnity. All this was done in the year of our Lord's Incarnation 1177, in the month of September, on the 15th day of the month, in the reign of Henry, son of the Empress Matilda, and in that of his son, also called Henry, who had been crowned King a few years before, Richard being Archbishop of Canterbury,

[16] This explains why William of Worcester, when he visited Cornwall in 1478, found in the kalendar of Bodmin priory, on 14 September, the words ' Exaltacio Sancti Petroci ' (he adds ' die exaltacionis Sanctae Crucis '). The anniversary of the return of the relics from Brittany was clearly observed as a festival of the first-class, with octave, down to the Reformation.

Bartholomew being Bishop of Exeter, to the honour of Our Lord Jesus Christ, Who with the Father and the Son [*sic*] and the Holy Ghost liveth and reigneth for ever and ever. Amen.

Note

Sir John Maclean, *History of the Deanery of Trigg Minor*, 1, 231, says, 'There is belonging to the corporation of Bodmin, and now in the custody of the town clerk, a very curious and ancient ivory casket. According to tradition it is the same . . . used in bringing back the relics of St. Petrock'. It is 'in length about 1 ft. 6 ins., about 1 ft. in breadth, and in height about 10 ins.'. Mr Alexander Nesbitt, F.S.A., pronounced it to be 'an example of oriental work of about the 12th or 13th centuries'. It is said to have been hidden in the room over the porch of the parish church, and accidentally discovered in the 18th century, but Maclean does not mention this.

[The casket was exhibited before the Society of Antiquaries on 2 February 1871, and reported in *Proceedings*, Series 2, v, 87. There it is stated that few of such coffers have survived, and that there is difficulty in determining their place of manufacture. It is thought they were of the Hispano-Moresque School. Particulars of the casket are also included in L. Jewitt and W. H. St. John Hope's *Corporation Plate*, 1895, 1, 76–8.—Editor].

Kilwa: a Review

by Nelson Glueck

Transjordanien: vorgeschichtliche Forschungen, edited by Hans Rhotert, with contributions by Prof. Franz M. Th. Böhl and Dr K. Willman. pp. xii, 251, 63 photographs, 294 line-drawings and 3 maps. Verlag Strecker und Schröder, Stuttgart, 1938.

DURING December 1932, a joint expedition of the Transjordan Department of Antiquities, and the American School of Oriental Research, Jerusalem, under the direction of Mr and Mrs George Horsfield and the reviewer, undertook a trip of archaeological reconnaissance through the desert of eastern Transjordan from Mafrak to Kilwa. The existence of ruins at Kilwa was known to us, and they formed the ultimate objective of our journey. Gertrude Bell seems to have been the first European to have visited these ruins on her way to Hayil in 1914, merely recording the fact in her *Letters*. We were able to establish the fact that the buildings there belonged to a Christian community of *c.* A.D. 1000. They housed a monastic settlement, marked also by numerous small cells in the vicinity of the main buildings, which existed in the midst of a Moslem world. The early Christian settlement at Kilwa was well situated. It was on the north-south track leading from Bayir Wells to Kilwa; the Egyptian west-east Hajj route from 'Aqabah crosses the Jebel Tubaiq near Kilwa, where there were once some wells, and also a small reservoir. Before the advent of Mohammed, orthodox Christian hermitages lay on the main caravan routes. The monks went to Arab fairs, where they helped nomad travellers with water and tended the sick. The Christian inhabitants of Kilwa must be thought of as functioning in similar capacities. The main group of Christian buildings at Kilwa, constructed of basalt blocks, resembles in general type the buildings in the southern Hauran. Several hundred metres northeast of the Christian site we noticed several constructions, at the base of a small hill of Nubian sandstone, which turned out to be lime-kilns, apparently contemporary with the monastic settlement. A further examination of the hill however, revealed to our amazement that every smooth surface on it was covered with prehistoric rock-drawings, some of them superimposed upon one another. Gertrude Bell had missed them, but they

must have been familiar to the early Christian inhabitants of the site. We were the first Westerners to see the rock-drawings, which testified to the presence of prehistoric man in this remote corner of the north Arabian desert. Unfortunately, we were not equipped for a long stay at the site. We had furthermore spent most of the day examining and planning the buildings of the Christian settlement. Mrs Horsfield and the writer snapped pictures right and left, during the short time that remained at our disposal. We had no time to look for stone implements, and not even enough time to be certain that we had found all the visible rock-drawings, nor to remove the sand from crevices where others were bound to be found ; much less to undertake a thorough investigation of the surrounding district, or to see whether or not any other rock-drawings could be found. All too soon we were compelled to leave our work and dash through the treacherous sands to the previously prepared camp. We did not return at a later date to Kilwa, but rested content in publishing as much as we had seen of Kilwa, and our conclusions with regard to it.[1] None of us were prehistorians, and we felt that a second expedition to the site should be undertaken by a more competent group with specialized training and equipment. It was not till 1934 that such a group went to Kilwa, under the general direction of Leo Frobenius, and led by Hans Rhotert. It remained there for two months during part of November, December 1934, and part of January 1935, and made an exhaustive study of the prehistoric rock-drawings, and of the entire district surrounding Kilwa. The book under review gives the full report of the results of this expedition.

It is a well got-up book, with its beautiful photographs, excellent line drawings, and spacious margins. But it is a pity the author could not have refrained from intruding political propaganda into a first class scientific work. The following statement, translated from the introduction, p. 23, is as incorrect in its facts as it is malicious in its innuendos : ' The inhabitants of Transjordan, threatened in their economic life by the Jews and dominated politically by the English, see in the German developments since 1933 a struggle for freedom which arouses their admiration—a struggle which may lie in store for them, or which they they may not outlive. How often were we asked en route about the " Pascha kebir, kebir, kebir ", the very great Ruler, by which naturally

[1] G. and A. Horsfield and Nelson Glueck : ' Prehistoric Rock-Drawings in Transjordan', *American Journal of Archaeology*, 1933, XXXVII, 381–386, 529, plates XXXIX–XLV; Nelson Glueck, ' Christian Kilwa ', *Journal of the Palestine Oriental Society*, 1936, XVI, 9–16.

the Führer of the German people was meant '. Cannot the price for handsome publications be raised in present-day Germany without sycophantic genuflections ? There are no Jews in Transjordan. Its economic life, it is true, is in difficult straits now partly because of the political disturbances in Palestine, and because even in peaceful times Transjordan could only benefit indirectly from the upswing which has marked the economic life of Palestine in the post-war period. The English have brought a peace and possibility of development to Transjordan which it has not known for centuries. The reviewer, who has travelled into almost every nook of Transjordan in the company of Arabs only, has yet to hear any complaints against the British mandatory rule as such, although naturally there are some local grievances. The population of Transjordan, apart from its general appreciation of the good government it is now enjoying, remembers too vividly the days of the previous government to have even the faintest hankering for a ' struggle for freedom ', to be dominated perhaps by a Germany which has never given up the dream of Berlin to Baghdad ?. As for the numerous times when Rhotert's party was greeted with the equivalent of Heils to the ' great, great, great Pasha ', the readers of this review may be reminded of the fact that the 250 kilometres between Maan and Kilwa, the distance most frequently traversed at 50 kilometres an hour by various members of the Rhotert party, is a stony or sandy desert, where rarely a lonely Bedu may be seen, or through which an occasional herd of camels is driven. Questions were undoubtedly asked occasionally about the well-being of the ' great Pasha ' ; but to any one even slightly acquainted with Transjordan, it is well known that when el-Pasha el-Kebir was referred to, it was the extremely capable, and much loved Peake Pasha, Col. F. J. Peake, formerly Officer Commanding the Arab Legion in Transjordan, who was meant. He worked with Lawrence during the war, and, together with a handful of other outstanding Englishmen, under the leadership of the astute and loyal Emir Abdullah, remained when peace was declared, to organize and administer the country.*

It has been necessary to refute the incorrect statements in what may be called the impressionistic part of the book, particularly because they have not even the *Schönheitsfehler* of being honest mistakes in scientific judgment, and because they do serious injustice to the splendid

* The insertion of irrelevant political comments in a scientific publication is rightly criticized. Such comments merely serve to create ill-feeling, and thus prejudice future expeditions.—EDITORS.

subject of Transjordan, which is also the title of the book, and which is as such totally misleading, except for the sub-title of ' Prehistoric Studies ' on the inside title-page. To judge from the cover-title, one might expect a many-faceted book about Transjordan, its ancient past, its involved present, its inhabitants in the various periods of its history, its climate, geography, geology, topography, and other aspects of its complex whole. Instead, there is the account in the first chapter of the book of the equipment and journey of the expedition by car to Istanbul (not Constantinople !), the description of customs difficulties there, the journey by boat to Haifa, and a short stay in Jerusalem. The description of the journey to Amman, Maan, and Kilwa, is rattled off in a few pages. The largest part of the book concerns itself most properly with Kilwa ; but Kilwa is a single, isolated, and extraordinary part of Transjordan, and is only a short distance from Saudi Arabia. Kilwa is the only place of its kind in all the Near East, one may say the only place of its kind east of Europe and northeast of Africa ; but it can certainly not be representative of all Transjordan. Indeed, the reviewer fails to understand why the book was not honestly called ' Kilwa ', after the tremendously important subject-matter with which it is chiefly concerned. (It is an unconscious reflection on a fine desert bird, due no doubt to a printer's error, p. 47, to call a desert-bustard a ' Turkey Bastard '). The author of the book need not take umbrage at these strictures, because in his introduction he observes that the scientist will be interested especially in the third and fourth chapters of the book. We agree ! The foreword, introduction, chapter 1, and almost all of chapters 2 and 5—the latter two chapters being diary excerpts—may well be skipped. Having in these sections of the book devoted so much space to ordinary travel accounts and photographs, we find it regrettable that Rhotert did not give more attention to the buildings of Christian Kilwa than he did. Together with his other excellent photographs, he might well have included photographs of the interesting lintel over a monk's cell at Kilwa, on which a Byzantine cross and an Arabic inscription are incised, as well as another Arabic inscription found in one of the main buildings.[2]

The third and fourth chapters of the book, which form its major part, are of primary scientific importance. Whether or not one agrees with Rhotert in all of his presentation, it is a pleasure to be confronted with a detailed, meticulous, scientifically objective account of the

[2] Cf. *Journal of the Palestine Oriental Society*, 1936, XVI, pl. 1, and pp. 12–13, where Prof. L. A. Mayer of the Hebrew University discusses these inscriptions.

prehistoric finds at Kilwa, fully documented and copiously illustrated. Every stone implement discussed is illustrated with either a line drawing or a photograph, or both, and the illustrations of the rock-drawings leave nothing to be desired. The line drawings of the siliceous (quartzitic) sandstone implements made by Miss Elizabeth Krebs are especially worthy of praise. A map of the Kilwa district is appended to the book, enabling the reader easily to locate the places where finds were made. This map is supplemented by an excellent panorama photograph of the Kilwa basin made by Rhotert, despite the lighting difficulties encountered in the district. At the beginning of the book are two maps; on the first are traced the various trips made by the Deutsche Inner-afrikanische Forschungs-Expedition, under whose auspices also the Kilwa expedition was undertaken, during 1934–35. The second is a map of Palestine and Transjordan, giving among other places all the points visited by the expedition.

The lodestone which attracted the Rhotert expedition to Kilwa was the prehistoric rock-drawings which had first aroused our enthusiasm. The hill on which the rock-drawings were found has been named the 'Horsfieldberg' by the German expedition. One of the most beautiful of the rock-drawings is that of an ibex. It is about 50 centimetres high, and is faithfully and artistically rendered. The burin marks are clearly visible, the lower left end of each stroke being slightly deeper than the upper end. Some of the lines were obtained by chiselling from either edge of the desired width of the line, the deepest indentation being in the middle. The artist possessed considerable ability. The full gracefulness and beauty of the delicate animal, which is still to be found in the Transjordan desert, have been caught and imprisoned in the lines on the stone. Details are finely represented. Nostrils and neckline, horns rising and sweeping back gracefully from the head, then curving and tapering to sharp points touching the back, the foreleg lifted in motion—all these features bound together in a delicate yet strongly portrayed whole—give the rock-drawing a vibrant reality. The head of the ibex is raised, and from its mouth stream two lines, possibly representing blood, as Abbé Breuil suggested to the reviewer in 1932. It seems to represent a picture of a wounded ibex poised in flight. Rhotert agrees that the two lines extending downward from the mouth of the ibex represent streams of blood, but suggests that this and other related rock-drawings represent sacrificial scenes. The reviewer confesses having completely failed to see, when he was in Kilwa, the crude drawing of a small human figure with outstretched arms, standing on the

back of this ibex, which is quite clear in the excellent photograph, pl. 10 bottom, published by Rhotert. Rhotert is uncertain as to whether or not this rock-drawing is contemporary with that of the ibex. For us there is no question, but that it is much later. The lines are much shallower, the workmanship quite different, and the whole drawing so obscure, that it escaped our attention in the light in which we saw it. Indeed, we should be inclined to assign it to a period as late as the Thamudic.

One of the most interesting of the rock-drawings, and the only one of its kind on the Horsfield-hill, is an elongated, narrow-headed, horned animal, presumably an ox, over two metres long, superimposed over several smaller and previously incised drawings of ibex. Below the left foreleg of the ox is another small, considerably weathered rock-drawing, also probably of an ibex, and earlier than the drawing of the ox. Its only depicted hoof is attached in reverse fashion to its hind leg by a single line. Rhotert, however, considers it a hitching line. Squatting under the ox, with arms raised above his head, is the highly stylized figure of a human being, resembling one from the Fezzan rock-drawings in North Africa. In his right hand he is holding, according to Abbé Breuil, to whom we showed a photograph of this rock-drawing in 1932, what may be a spear, which he has thrust into the side of the ox. Abbé Breuil suggested to us at the time that this composition represents a hunting scene. There is no question but that the ox and the human figure squatting under it are contemporary. Rhotert thinks that the spear may merely be the end line of the back side of an ibex, over which the drawing of the ox has been superimposed. We believe, however, that the deepness of this line is more in harmony with the lines of the ox and of the man than of the ibex, as can be best seen perhaps in the photograph, pl. XL, 1, which we published in the *American Journal of Archaeology*. We agree, however, with Rhotert, that these drawings do not represent an ordinary hunting scene. Indeed, it seems more strange to the reviewer than ever, that if indeed this is an ox, and not some particularly crude representation of some animal more characteristic of the desert, that it should be portrayed at Kilwa at all. We confess also being sceptical as to whether or not the rock-drawing on p. 212 bottom, and pl. 23 bottom, represents a plough, as Rhotert would have it. We missed seeing this drawing, in addition to many others which the Rhotert expedition discovered on Horsfield-hill ; but to our mind, the photograph on pl. 23 bottom, gives the impression of an animal much more than of a plough. Of much interest is the rock-drawing (p. 208, pl. 22), discovered by the Rhotert expedition, representing a

human pair in seated position, clasped together in close embrace. It is very similar to the limestone statuette found by Neuville in the Wadi Khreitun near Bethlehem, which Neuville assigned to the Natufian period. Rhotert assigns this rock-drawing to the same period. There is another rock-drawing at Kilwa, which we had previously seen, but not published (cf. pp. 183, 212, pl. 23 top), which Rhotert suggests may represent a male figure, enclosed within a double circle. We believe he has misread the confusion of rock-drawings contained in this group. What he considers to be the lines of a double circle are obviously the lines of ibex horns, such as are found on many of the earliest of the Kilwa rock-drawings, and they are all that is left of the rock-drawing of the ibex, which originally covered this particular surface of rock. If my memory serves me correctly, this group of drawings is to be found on the flat surface of a small flat shelf or space of the Horsfield-hill. Inasmuch as this space was particularly accessible, it was bound to be utilized for more or less artistic efforts during various periods. What Rhotert takes to be the outlines of a male figure, are actually, it seems to us, the outlines of two very crude little animals, the one near the bottom of the excellent photograph being particularly clear. It is of a type which undoubtedly belongs to a comparatively late historic period.

Whether or not one agrees with Rhotert's datings for the prehistoric rock-drawings at Kilwa, or with his interpretations of them, he and his capable staff have furnished photographs and drawings of such general excellence that the competent reader is placed in a position to judge for himself. On the basis of the photographs the reviewer showed to Abbé Breuil and Professor Dorothy Garrod in 1932, these two authorities then dated most of the prehistoric rock-drawings that we had discovered to the Palaeolithic and Neolithic periods. Naturally, they might have changed their minds had they actually seen the rock-drawings *in situ*. As the result of his careful study of the prehistoric rock-drawings, Rhotert has come to the conclusion that ' an Upper Palaeolithic dating for the rock-drawings is out of the question '. He would date the earliest of the rock-drawings to the Mesolithic period, beginning with Natufian 1, and carry their development down to the Bronze Age. He assigns most of the drawings of ibex to the Mesolithic period, and suggests that perhaps the drawing of the human pair locked in embrace is also to be assigned to this period. He thinks furthermore that the drawing of the ox, with the figure of the squatting human beneath it, may belong to the latter part of this period. Rhotert is probably correct is assigning the ' leopard ', which he would classify as a kind of

lizard, not to the Palaeolithic period, as we had previously done on the authority of Abbé Breuil, but to a period considerably later than the Mesolithic. To judge from the Thamudic inscriptions and the contemporary human figure super-imposed over it, which it thus antedates, it is, however, to be dated somewhere in the pre-Christian era.

When Rhotert speaks of the Bronze Age, both with regard to implements and rock-drawings, he cannot now mean what he says. He equates Bronze Age with Ghassulian, following the date for Ghassulian given at first by Mallon and Köppel. However, from the time of the very first reports dealing with the results of the excavations at Teleilat Ghassul, Albright has maintained that the Ghassulian Culture must antedate the Early Bronze Age, since its pottery is so radically different from Early Bronze Age pottery, especially in its lack of decorated ledge-handles. At first, Albright dated the Ghassulian culture to the second half of the fourth millennium B.C. ; more recently, he has pushed it back into the first half, with its beginning perhaps in the latter part of the fifth millennium B.C. Proof of the general correctness of Albright's position has now been furnished by the latest excavations at Jericho. In 1935 and 1936, Garstang excavated in the lower levels at Jericho, and found pottery with Ghassulian affinities below a thick stratum of typical Early Bronze Age wares, thus proving their respective positions. Other excavations in Palestine have furnished additional corroboration of the fact that the Ghassulian or Chalcolithic period precedes the Early Bronze Age, and cannot be equated with it. This relative dating has now been accepted by Father Köppel himself. It may also be added that the relative sequence of cultures immediately preceding and following the Ghassulian, as now revealed by the Jericho excavations, is : Natufian, Tahunian, Ghassulian, and Canaanean. Wherever, therefore, Rhotert uses ' Bronze Age ', the reader of his book may substitute ' Ghassulian ' or ' Chalcolithic '.[3]

In addition to the prehistoric rock-drawings, Rhotert describes in detail and furnishes excellent photographs and many fine drawings of the much later and much less skilful rock-drawings also to be found at Kilwa, most of them on Horsfield-hill. He also discusses the related rock-drawings in the Wadi Rum and at el-Quweirah. Many of the late rock-drawings at Kilwa were found associated with Thamudic inscriptions, and are probably contemporary with them. In a brief

[3] For the most recent and correct summary of the discussion about the Ghassulian culture, cf. G. Ernest Wright : *The Pottery of Palestine from the Earliest Times to the End of the Early Bronze Age*, pp. 14–41 (reviewed ANTIQUITY, March 1939, pp. 126–8).

separate chapter, Franz M. Th. Böhl deals with the inscriptional material recorded by the Rhotert expedition, and points out, in agreement with us, that none of the inscriptions precede the Christian era, and most of them may be regarded as Thamudic and assigned to the third century A.D. Böhl points out furthermore, that there are definitely no proto-Sinaitic characters among the Kilwa inscriptions.

In addition to its exhaustive study of the rock-drawings, the Rhotert expedition made a detailed study of the district surrounding the Horsfield-hill, and collected over 5000 stone implements from some 27 different sites in this area, as well as some scattered finds. A graphic table of the finds classified both according to place and period is given. The finds on site 19 are particularly interesting, because this site is immediately in front of Horsfield-hill with its prehistoric rock-drawings. Rhotert carefully considers the possibility of a connexion between the date of the implements and its bearing upon the date of the prehistoric rock-drawings. He is correctly cautious in drawing conclusions from the juxtaposition, but finds a relationship between the rock-drawings and the implements of site 19 which seems to be quite reasonable. After a careful examination of the implements on site 19, Rhotert concluded that they are mainly Natufian, *i.e.* Mesolithic, and extend down to the Early Bronze Age (read Chalcolithic), although some of them may have originated in the pre-Mesolithic, *i.e.* in the Middle Aurignacian period. Having dated the earliest rock-drawings on the basis of the known development of prehistoric art to the Mesolithic period, we feel that Rhotert is quite justified in adducing additional support for this dating from the fact that the only implements which can be directly connected with the Horsfield-hill belong predominantly to the same period. On some other sites, the expedition found implements belonging to the Lower and Upper Palaeolithic periods. A special group of implements, which seems to be peculiar to Kilwa, has been designated as belonging to a ' Kilwa Culture ', and has been assigned to the Mesolithic period or later. The care with which Rhotert has dealt with his materials is indicated also by the fact that he includes in his report drawings and descriptions of implements which he cannot classify. In addition to Böhl's report on the Kilwa inscriptions, there is also an interesting discussion by K. Willmann on the geology and petrography of Kilwa. The scientific sections of the book under review form a valuable contribution to the rapidly growing mass of information about the prehistory of Palestine and Transjordan.

The Volcanic Destruction of Minoan Crete

by Sp. Marinatos

Director of the Greek Archaeological Service

In the long history of Minoan civilization two great catastrophes are discernible, of which the famous Cretan palaces themselves provide the chief source of our knowledge. Everywhere the catastrophes are seen to be contemporaneous. We can distinguish a period of the first palaces (MM) and a subsequent period of the second palaces (LM). There is no perceptible break in the development of the civilization as a result of these catastrophes. For this reason, the theories that the palaces were overthrown by invaders from abroad aroused opposition from the first. Usually the Achaeans—and even the Hyksos—were suggested as the destroyers.[1] By this theory, however, it was not possible to explain two facts: the decorative arts continue on their way undisturbed, and the second palaces are built at once on the ruins of the first and are still unfortified. The Cretans would not have been so foolish as gratuitously to provide easy loot for fresh invaders.

After the great earthquake of 26 June 1926, which did such damage to the Candia Museum, Sir Arthur Evans put forward a new theory, suggesting that the catastrophes were caused by earthquakes, and this is much nearer to the truth.[2] There can be no doubt that at Knossos, lying in the district of Crete which is most susceptible to earthquakes, the destruction of the palace on many occasions was due to them. The attempts made in recent years to tabulate the occurrences of earthquakes show us that in every hundred years the Herakleion district experiences at least two severe, destructive ones.

When, however, we attempt to explain the various catastrophes throughout the island by common earthquakes, the problem begins to present difficulties. The other parts of Crete are less susceptible[3]; many districts, indeed, are almost wholly immune. Moreover, earthquakes are usually confined to a very small area. So far, even in the

[1] Edouard Meyer, *Geschichte des Altertums*, 22, 1, pp. 43–4.

[2] *Palace of Minos*, II, 313 ff.

[3] *op. cit.* II, 319.

Herakleion district which suffers so much, each earthquake has, as a rule, destroyed only a few villages and the surrounding districts have been little affected. It is, therefore, worth our while to examine in detail the two great catastrophes which befell the Cretan palaces.

Three palaces are already known—at Knossos, Phaistos and Malia. It is very probable that we may discover one, perhaps two, more. At the eastern end of the Mesara, under the shadow of Mount Dikte, where the rich cave of Arkalokhori was excavated a few years ago, we can confidently expect the discovery of a new palace.[4] In the eastern districts of Crete, Mirabello and Siteia, a brilliant school of art with distinct local characteristics flourished from the beginning to the end of Minoan times. It is probably there where we must look for the home of the magnificent ' marine style '.

Until, however, new excavations give us fresh light, we must base our conclusions on the three palaces already known. Recent discoveries have shown that at Malia, as at Knossos and Phaistos, we have two periods of palace construction. It is not yet absolutely certain when the first palace at Malia was destroyed, and though the beginning of MM II is suggested[5] as the date, M. Chapouthier now believes (as he kindly tells me in a letter) that it took place in the MM IIIa period. The two other palaces—at Knossos and Phaistos—were destroyed during the splendid ' first acme ' of Cretan art, the ' Kamares style ' period. According to Sir Arthur Evans a simultaneous ' seismic ' catastrophe befell Knossos and Phaistos during MM IIb, about 1750 B.C.[6]

If, meanwhile, we look at the great store-jars which were buried in the store-rooms of the two earlier palaces, great doubts arise in our minds. Was the destruction of Phaistos absolutely coincident with that of Knossos ? This would be essential if one and the same earthquake were supposed to cause both. The store-jars at Phaistos are, as a rule, smaller and more archaic-looking than the corresponding Knossos

[4] For Arkalokhori see the preliminary reports in *Arch. Anzeiger*, 1934, 251 ff, and 1935, 248 ff.

[5] *Mallia* (the correct orthography is Malia), II me. Rapport (Études Crétoises, IV), p. 50.

[6] *Palace of Minos*, II, 319 and cf. I, 258, 299, 315–16. Pernier (*Festós*, pp. 452–3), like N. Åberg, dates the destruction at the end of the Middle Minoan Period, *i.e.*, about 1700 B.C., but it is noteworthy that Pernier seems not to distinguish the two separate catastrophes at Knossos, that of MM IIb and that of MM IIIb. We conclude from his passage on page 453 that he considers that the new palace at Phaestos was built buring the advanced MM III period.

examples. The 'knobbed' store-jars are more squat and have fat, swollen bodies. They seem earlier when contrasted with the developed, tall appearance of those at Knossos.[7] It seems, therefore, as if the destruction of the Phaistos palace took place during MM II, but before that of the Knossos palace. In any case, it appears certain that the first palaces on the Cretan sites were not destroyed simultaneously. The palace at Knossos cannot have been destroyed by anything but an earthquake, but, in the case of the other two sites, we cannot exclude the possibility that they were destroyed through violence by enemies, who in fact sacked both. The destroyers cannot have come from abroad. It was clearly the dynasty of Knossos which must have imposed its power by violence. The Knossos palace is rebuilt on more grandiose lines than the two others, with wide spaces and great vistas. Its huge store-rooms and other riches, the progress of its complicated, bureaucratic system of writing and, in general, the great prosperity of the Minoan city with its magnificent buildings surrounding the palace, show clearly that here was the centre of power. Knossos had no rich and fertile territory round about, such as the Mesara plain which surrounded Phaistos. It is, therefore, clear that the vast store-rooms of the Knossos palace received the tribute of all the other districts.

We can, then, say that the political unit, which finally resulted in the famous *pax Minoica*, was realized very early—during Middle Minoan times. We need not picture a despotic and strictly military constitution. The peaceful character of the Minoan civilization, and the fact that the palaces at Malia and Phaistos are rebuilt, prove that the constitution was a loose one, just firm enough to retain the whole island under one chief ruler. The peaceful and enterprising people of Minoan Crete—mainly merchants and sea traders—soon saw the advantages of a controlling power which made it possible for them to devote themselves with carefree confidence to their own sea enterprises. We find wholly analogous conditions in Mesopotamia which had one chief ruler, Lugal, and other lesser rulers, the so-called Patesi, each of whom was subservient to Lugal but wielded a certain amount of independent power.

All the Cretan palaces were rebuilt during MM III. Those of Phaistos and Malia lasted until the end of LM I, when they were destroyed. In the earthquake-suffering district of Knossos we have an intermediate catastrophe about the end of MM III but the palace was immediately rebuilt. It is obvious that we must attribute to this

[7] Cf. the figures in *Palace of Minos*, I, 232 fig. 174–5.

event the rich painting of the walls of this palace with frescoes, a means of decoration which was introduced at that time. In the other palaces we have no frescoes of this period.

The fresh catastrophe of LM I was fatal and general throughout the whole of Crete. It seems certain that it was the most terrible of all which occurred on the island. The palace of Knossos had, as we have seen, just been rebuilt and it may in consequence have suffered less than the others. It is, in any case, the only one that was repaired and continued in use into the succeeding period of the 'Palace style' (LM II). The other two palaces were destroyed, but that is not all. The same tragedy befell all the so-called mansions, such as those at Hagia Triada, Tylissos, Nirou Khani, Sklavokampos, Amnisos and Apodoulu—to mention only those already excavated. Whole cities, too, were destroyed. Gournia and the town of Knossos are typical examples but there were also Palaikastro, Pseira and Zakro. Even sacred caves fell in, like the one at Arkalokhori.

Here we must interpolate a few words about the ceramic styles of this time, in order to make it clearer that this great catastrophe was everywhere simultaneous. The LM I period is divided into two parts—the so-called 'floral style' period (LM Ia) and the 'marine style' period (LM Ib). It is generally thought that these two periods succeeded one another, but that is not quite true. Perhaps it is not true at all, for, in the frescoes from which the potter drew inspiration, the floral style is contemporary with the marine style. We have, moreover, vases painted in the marine style, such as the jar with dolphins from Pachyammos, in MM III, and furthermore the antecedents of both styles, both plant motives and marine motives, are already to be found at the height of the Kamares style in MM II.[8]

It is apparent, therefore, that in the vase-painting of both periods the floral and marine styles exist side by side, at least in their general lines, and are contemporaneous. Thus in the different ruined centres we have mentioned the greater number of examples (and the

[8] For the jar from Pachyammos, *P. of M.*, I, 608, fig. 447. Vases of the Kamares style decorated with floral motives are very common, especially from Phaestos: Pernier, *Festós* I, pls. XVI, XX, XXI–II, etc. Marine motives, too, are common enough. Fish are already found on MM I vases from East Crete (*P. of M.*, I, 182, fig. 131). For an octopus on a vase from the cave at Kamares, *op. cit.* I, 246, fig. 186 (f). Seashells in combination with rockwork are known, *e.g. Festós* I, pl. XXX. Cf. the well known flying fish and sea creatures in faience from the Temple Repositories at Knossos, *P. of M.*, I, 520, fig. 379 and the gold goblet from the shaft graves at Mycenae, Karo, *Schachtgräber von Mykenae*, pl. CII, no. 73, which are works of the MM III period.

more developed in style) of the marine class are found in East Crete (Palaikastro, Zakro and Pseira)—perhaps because the marine style was at home there. At Amnisos no vases of this type have yet been found but isolated examples occur at Gournia, Malia, Nirou Khani and Tylissos, together with vases of the advanced floral style—these last in great abundance. At Sklavokampos we found, together with vases of the advanced floral style, a jug decorated in the advanced marine style. The clay sealings which were found in the mansion at Sklavokampos are of the same style as those of Zakro and Hagia Triada. We even found—it was the first time such a thing had happened in Crete—a sealing identical with one from Hagia Triada, impressed by the same seal—a gold ring with an ellipsoidal bezel—on which a chariot was represented.[9]

There can, therefore, be little doubt that the great catastrophe overcame the whole of Crete at one and the same time. It has been suggested that Knossos may have destroyed the other centres. This is, however, scarcely plausible, for Knossos itself did not escape. It too was destroyed, together with its harbour town, Amnisos, and the whole surrounding district. Nor can we believe in an invasion from abroad. It is still premature to suggest an assault by Achaeans or any other invaders. If that were the case, we have yet to explain why Knossos, the only place to escape complete ruin, remained unfortified afterwards.

Thus the only remaining explanation of the disaster is one of ' natural causes '. A normal earthquake, however, is wholly insufficient to explain so great a disaster. In all the many earthquakes known to us, there has never been such widespread destruction at one and the same moment. In another district of Greece extremely liable to earthquakes—Corinth—the last destruction of which is still very fresh in one's memory, we find that Old Corinth was destroyed and New Corinth was built six kilometres away. Then the new town was destroyed and the old village remained intact. We know, too, that at the time of the great disaster of Helice, where the population was drowned to a man as a result of a great earthquake, the neighbouring Voura sustained serious damage but no more distant Aigion (40 stades) did not suffer at all.[10]

[9] The mansion at Sklavokambos is still unpublished. For a preliminary report see *Arch. Anzeiger*, 1933, pp. 288 ff. and cf. Karo, *Altkretische Verwaltungskunst* (Εἰς Μνήμην Σπ. Λάμπρου), pp. 569 f.

[10] Paus. VII, 25, 8. Cf. Senec. Quest. nat. lib. 6, 25.

We could cite many other examples of the same sort of thing. When, therefore, we remember that Crete is made up of many, very varied, geological deposits and that it is only the soil of the Knossos district which is alluvial and prone to earthquakes, we cannot believe that a simple earthquake could cause so terrible a disaster. It was, therefore, all the more gratifying that the excavations at Amnisos furnished new evidence on the subject and led me to think that the disaster in Crete must be attributed to a tremendous eruption of the volcano on the neighbouring island of Thera.

This eruption is the greatest which can be proved historically. Briefly the story of the volcano on Thera is this. In geological times there were only two bare, rocky islands composed of non-volcanic stone. Their present names are Hagios Elias and Monolithos. Gradually several craters were formed under the surrounding sea and by their continual eruption of volcanic matter a round island was built up, incorporating the two original rock-islands. The volcanoes were dormant for a time, and the whole of the island was covered with vegetation. We know that at that time myrtles, olives and palms were among the flora, and that the island was inhabited. There was, in fact, more than one settlement on it. Then suddenly the sleeping volcano awoke and, after a tremendous paroxysm, the whole of the centre of the island, together with a part of the west coast, was blasted away and sank—in all an area of 83 square kilometres. What remained was Thera, Therasia and Aspronisi. In the centre a great abyss was formed, originally more than 600 metres in depth—the greatest and most imposing caldera in the world.[11]

Before the final eruption a great quantity of ashes and pumice stone, thrown up by the volcano, covered the island with a layer thirty metres thick—a phenomenon which is typical of all the great explosions of Thera. We know from the Byzantine chronographer Theophanes that during the eruption of A.D. 726, in the reign of Leon Isaurus, pumice stone covered a great area of the sea round about and floated afterwards as far as Asia Minor, Abydos, Salonika and Macedonia. Similarly, during the eruption of 1655, of which we have more than one description, ashes and pumice stone and even the sound of the explosion reached Asia Minor. In Chios they thought that a naval battle was taking place in the neighbourhood between the Venetian and Turkish

[11] See the important book by Fouqué, *Santorin et ses éruptions*, Paris 1879. The geological processes of the great eruption are a little modified by Hans Reck, in *Santorin*.

fleets. During the first mentioned tremendous eruption, which destroyed the island, many houses were buried under the layers of pumice stone. Some of these have been excavated, in particular by Gorceix and Mamet of the French School in Athens. They found vases, implements and pieces of fresco[12]—all belonging to the First Late Minoan period. The vases are of local manufacture but they imitate Cretan prototypes and thus we can safely date the explosion to the last years of LM I, about 1500 B.C.

No historical account survives of this great earthquake, but fortunately we have an excellent means of reconstructing all the phenomena which accompanied the disaster, in the eruption of Krakatau in the Dutch East Indies on 26–27 August 1883. Geologically speaking, both volcanoes belong to the same family, and the phenomena of their eruptions are therefore analogous. The islet of Krakatau is much smaller than Thera and the part of it which was submerged was about a quarter of the other (22.8 sq. km. against 83 in Thera). The account of the events and disasters which accompanied that eruption is truly amazing.[13] Vast quantities of pumice covered both the island and a great part of the sea round about. A whole island, Calmeyer, was formed in the strait of Soude and a harbour in the neighbouring island of Sumatra, that of Lampong, was so blocked up that for several months sea communication was broken off. A tremendous roar accompanied the explosion and was heard over 2000 miles away—just one twelfth of the earth's circumference. The vibration of the atmosphere set up by this noise broke window-panes and cracked walls at places as much as 100 miles away and even further, and these air waves encircled the earth several times. Such quantities of volcanic ash filled the air that, even at a distance of 100 miles, day was turned into dark night, and these ashes fell as much as 1000 miles away. Very fine particles of ash were thrown 30 miles up into the stratosphere, picked up by the air currents and dispersed over the whole of the earth. This dust was suspended in the air for months and months, and the wonderful colourings of the sunsets in 1883 were ascribed to it. But worst of all was a series of terrific waves which rose after the explosion. They were as much as 90 feet high, and broke with devastating force and

[12] The vases are now in the French School at Athens. They have been published by Renaudin, *B.C.H.*, 1922, XLVI, 113 ff. On the frescoes see Perrot and Chipiez, *Histoire de l'Art*, VI, 538–9 figs. 210–12. The flowers represented upon the stucco fragments are lilies of an already advanced LM I style.

[13] R. D. M. Verbeek, *Krakatau* (Batavia, 1886) in Dutch and French editions.

speed against the coasts of Java and Sumatra. Where they struck a plain, they swept inland, and as far as 1000 yards inland they were still 15 yards high. Whole towns, villages and woods were destroyed, and great masses of stones from the sea were hurled far inland. So, too, trains and ships. One of them, the steamer Barouw, was found afterwards beyond the town of Teloek-Betoeng several kilometres inland. This amazing catastrophe cost over 36,000 lives.

The distance between Thera and Crete is only about 62 miles. It is certain, therefore, that the inhabitants of Crete in 1500 B.C. lived through the same moments of terror as did the inhabitants of Java and Sumatra in 1883. If the explosion took place during the day, the day was surely turned into night and much damage was caused by the tremendous vibration of the air. The thunderous roar, too, must have deafened and terrified the Cretans, who had, of course, no means of knowing what was its cause. Then must have come the rain of mud and ashes, some cold, some ablaze and burning. Worst of all, however, were the waves which broke over the island, much higher and more rapid than those at Krakatau. For on the basis of his observations of the phenomena Verbeek has worked out a mathematical table, from which one can see that the speed of such waves is in proportion to the depth of the sea at each point. This is shown in the following table, which is based on observations at three different points on Sumatra, giving their relative distance from Krakatau and the respective depths of the sea.[14]

Place	Distance from Krakatau	Depth of sea	Speed of wave per second
Sanganila	64.00 km.	43.9 m.	25.96 m.
Beneawang	110.40 km.	109.5 m.	36.70 m.
Vlakke Hoek	103.00 km.	150.0 m.	41.17 m.

The sea between Thera and Crete is incomparably deeper than in the strait of Sonde. According to the excellent chart[15] of Imray, Laurie, Norie and Wilson, which I have before me, the sea here reaches a depth of 1005 and 1020 fathoms, *i.e.* about 2000 m. Even near the coast the depth is 150 and 400 fathoms at different points off Thera, and 96 and 116 off Crete. At a point exactly 26 miles from Amnisos it is as much as 1100 fathoms deep. (I do not know whether the composition of the sea floor at several points where it is marked ' yellow mud pumice stone ' may be ascribed to volcanic matter from Thera).

[14] *op. cit.*, p. 400.

[15] Imray, Laurie, Norie and Wilson (London), no. 149c.

There is, therefore little doubt that waves caused terrible destruction in Crete at that time. Mathematicians can calculate exactly the speed of the waves on the basis of Verbeek's algebraic tables; but, if we take only the very low speed of 50 m. a second, little more than half an hour sufficed for the inundation of the Cretan coast; and the speed was certainly much greater than that.

All the settlements on the coast soon disappeared—Amnisos, Nirou Khani, Malia, Gournia and Zakro, perhaps too Pseira and other towns. (This depends on the height of the waves). The finds in these centres prove that they were destroyed at one and the same time. At Nirou Khani the inhabitants had no time to take anything away. Huge double axes, the sacred symbols, lay where they had fallen. In one room the excavators found dozens of offering tables stacked one on top of another, as they were stored at the time of the disaster.[16] At Gournia the carpenter's and coppersmith's shops were found intact.

The most instructive excavation, however, was that of Amnisos. One of the buildings there, which lies quite near the sea, gave us the clue to the cause of the great disaster. The deeper levels of it were buried under a great mass of pumice stone and sand. A square pit inside the building near the southeast corner was literally full of pumice stone. We did not at first appreciate the significance of this fact and in my provisional report on the Amnisos excavations I asked whether the pumice stone were as traders' wares, purposely stored in the pit, though Santorin and the eruption came to my mind.[17] Later, however, the real explanation occurred to me. We can, in fact, reconstruct the phases of the disaster. When the waves broke the building was carried away almost to its foundations. Then it lay abandoned and after a time the north breezes brought the pumice stone from the volcano as far as Crete. As this building stands on the shore, it was constantly inundated by the sea and the rooms were thus covered with pumice stone. That this certainly was the case is proved by the fact that the pieces were all small, rounded, and polished like pebbles. Similar pieces—in small quantities—are to be found today on the Greek coasts. They fall into the sea at Thera and are carried everywhere by the waves.

The excavation of the 'Villa of the Frescoes' at Amnisos was equally instructive. Lying as it does a little farther inland and higher

[16] Ἀρχαιολογικὴ Ἐφημερίς, 1922, p. 1–25.

[17] Πρακτικά, 1932, pp. 79 f.

up the shore, it was not reached by the pumice stone. During the excavation, however, we noticed the unusual way in which the walls and the corners of the rooms had fallen in. Undoubtedly a tremendous natural force had caused this devastation—surely the waves after the eruption. As these waves receded, their strength was so great that they prized huge orthostatic blocks out of position and made the walls bulge outwards.[18] This is on the west side, at right angles to the line of the coast. On the north side, parallel to the waves, where the impact was much greater, two orthostats (or perhaps a single one of great size) are now missing and undoubtedly were carried away by the waves.

A further point proves how theoretical arguments are often insufficient to explain the facts. In the villa at Amnisos where, as so often in Minoan architecture, wood was used to a very great extent, we find that, especially on the north side, where there was a hall in both stories, there were traces of intensive fire. The stone bases of the wooden pillars were much damaged and blackened and rendered very friable. This was a great problem, as I could not reconcile the fire with a terrible inundation caused by the sea. I then found that exactly the same phenomenon was observed at Krakatau. ' At Tjaringin the waves swept away the houses . . . between seven and nine o'clock. The waves overturned the houses on the coast and the ruins were set on fire by the little lamps. The fire was repeated three times '.[19] We can, then, suppose that by the time the waves from Thera reached Crete it was night, or the day had been transformed into night and the inhabitants had lit the lamps—exactly as happened in the case of Krakatau.

To complete the picture of terror and dismay we must mention a few more characteristic phenomena at Krakatau. As all these were perceptible as far away as 100 and 150 km., we may justifiably suppose that similar conditions prevailed in Crete—to an even greater degree. The atmosphere in Krakatau at that time was electrified so that lightning struck people, and buildings such as lighthouses. A terrible gale sprang up with a deafening roar. Burning volcanic ashes, which blistered and killed people, rained down. At intervals soil and pumice stone fell. Pieces of pumice stone as big as a man's head fell 80 km. from Krakatau. This means that they must have been ejected at a speed of more than 1070 metres a second and have risen to a height of 50 km. Lamps were torn from their supports at Buitenzorg in Java,

[18] One of these orthostatic blocks is two metres long and one metre high. Cf. Πρακτικά, 1932, p. 92, fig. 10.

[19] Verbeek, *Krakatau* (French edition), p. 46.

150 km. from Krakatau. We have already mentioned that window-panes were broken equally far away. Old houses in places as far as 830 km. from Krakatau were so cracked that they had to be abandoned.

I think there is little reason to doubt that the devastation of the coast-sites of Minoan Crete was caused by the waves from the eruption of Thera. We read of similar phenomena on the occasion of later eruptions of the same volcano, which were in every case less violent than the one in 1500. Philostratus, for example,[20] reports that during the eruption in A.D. 60, when the islet Hiera appeared in the caldera the sea receded about seven stades from the south coast of Crete, at the point where the Asclepiaeum of Lebena was situated. The terrified priests expected that the waves on their return would sweep the sanctuary away but Apollonius cried ' Take heart, for the sea bore earth '. Similarly it is reported that in the eruption of 1650 the waves in Ios rose 50 feet ; at Sikinos the sea came 350 feet inland, while in Thera itself ' the waves came two miles inland and swept away old walls and chapels, foundations and all '. In Crete the ropes with which boats were tied up were cut through.

It is difficult to say, in the case of Crete, how far inland the waves came during the eruption of 1500 B.C. In the case of Krakatau we know definitely that 1600 m. from the coast the waves were still 15 m. high. Elsewhere the sea came two km. inland. Here the waves were only three metres high but they advanced with such force that widespread damage was caused.

It was only in the plains, however, that the waves came so far inland. The Cretan palaces, therefore (with the exception of that at Malia, which was almost certainly destroyed by the waves) and the other inland settlements could not possibly have been reached by the waves, even if we suppose that they were much higher than at Krakatau. It is only by a series of violent earthquakes that they can have been destroyed.

This put a new difficulty in the way of those who believed in a simultaneous destruction of all the sites of Crete, since Fouqué and Verbeek agree that eruptions such as those of Krakatau and Thera are never accompanied by earthquakes. This was proved in the case of Thera by the fact that the prehistoric buildings buried under the deep layers of pumice had their walls intact to a height of several metres. It is, therefore, impossible that earthquakes accompanied the eruption.

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[20] Philostratus, *Vita Apollonii*, 34.

Moreover, during the eruption of Krakatau only insignificant shocks were felt.

New light was thrown on this problem by a series of articles by Professor N. Kretikos, Professor of Seismology in the University of Athens. Verbeek had already noticed that before and after the eruption of Krakatau earthquakes were felt more often than usual in all the districts round about. Some of them were serious. According to Verbeek, some of them, particularly those which took place after the eruption, were possibly to be attributed to it.[21] Professor Kretikos has developed the theory more systematically,[22] and shows that before and after every eruption of Thera a whole series of earthquakes is to be noted in the neighbourhood: in Crete, the Cyclades, Sporades, Dodecanese and even farther afield. This was what happened in the great earthquake of 26 June, 1926, which beyond doubt was connected with the eruption of Thera some months earlier. It caused considerable damage not only in Crete but in many other districts—in the islands of Karpathos, Kastellorizo and especially in Rhodes, where thousands of houses were destroyed with loss of life. In Anatolia, too, houses and mosques collapsed. Damage was widespread throughout Egypt, with the exception of Assouan, and in Alexandria and Cairo alone 600 houses collapsed.

History corroborates this theory of Verbeek and Kretikos. We know, for instance, from various sources (Strabo, Pausanias and Plutarch) that in 197 B.C., when the island of Hiera appeared, serious earthquakes devastated Rhodes and Asia Minor. It is reported, too, that a great earthquake took place a year before the eruption of A.D. 726. Theophanes put the responsibility for all the disasters at that time upon the shoulders of the iconoclastic Emperor Leon. So, too, it is reported that very serious earthquakes took place a year before the eruption of 1650.[23]

We may be sure, therefore, that the same thing happened on the occasion of the tremendous eruption of 1500 B.C.—either as a prologue or, more probably, as an epilogue. A series of violent shocks may have devastated all the neighbouring districts, until the disturbed layers of

[21] Verbeek, *op. cit.*, p. 463.

[22] ' Sur la sismicité des Cyclades et de la Crète ', Annales de l'Observatoire d'Athènes, 1925, IX, 36; ' Sur les phénomènes sismiques produits avant et depuis l'éruption du volcan de Santorin ', l.c., 1926, VIII, 2 ff. Cf. also *l.c.* 1928, X, 47 ff. and *Comptes Rendus de l'Acad. des Sciences*, vol. 181, p. 923.

[23] See Fouqué, *op. cit.* and B. 'Ακύλας, Τὰ ἠφαίστεια καὶ ἡ νῆσος Θήρα Athens, 1925.

the earth had settled again. In Crete, especially, earthquakes may have completed the devastation which occurred.

This is neither the time nor the place to examine the possibility that devastation elsewhere—in the Cyclades (Melos), the other islands, in Asia Minor and even in Egypt—should be attributed, directly or indirectly, to the great disaster of Thera. Let us confine ourselves to Crete, where this terrible disaster had a profound influence on the culture of the island. It received an irreparable blow, and from then onwards gradually declined and sank into decadence, losing its prosperity and power. What power remains is concentrated at Knossos which, for a little while, carried on the venerable traditions of the Minoan civilization as the ' Palace Style '. The other palaces are not rebuilt, and the ' Palace Style ' is to be found only sporadically here and there outside Knossos. There is no longer any town or any great centre in Crete. The culture and art faded steadily and finally died out completely.

We can be certain that after the great catastrophe the majority of the inhabitants fled in terror from the island. They thought that the mother-goddess had turned against her island and cursed it. Anyone who wants to picture the terror and agony of the islanders during the eruption of Thera should read the personal impressions of a scholar so calm and rational as Verbeek, as he recorded them during the eruption of Krakatau. Although he was at Buitenzorg in Java, 150 km. away from the volcano, he recounts that there, too, as in Batavia, which was equally far away, singularly dramatic events took place. During the whole night no one in western Java could sleep for the roar and the flashes from the eruption. Anyone who did not witness it can scarcely imagine the feeling which comes over a man when a mountain which lies 150 km. away utters a roar as terrible as the salvoes of guns fired in the immediate neighbourhood. In addition, all the objects which were free and loose were continually being moved about ; as a result, crashes, bangs, clashes, creakings and crackings resounded everywhere, causing physical and mental agony. The crashes were followed by complete silence, which was equally terrifying and caused widespread nervous hysteria. In the morning a horrible noise broke out so that the men who were attempting to make up for their lost sleep leaped from their beds. Lamps fell from their fittings and plaster from the walls ; doors and windows were thrown open ; complete pandemonium reigned. Then it began to grow dark, increasingly rapidly after ten o'clock and the lights were lit. A cloud of yellowish grey smoke came

over the land. Everywhere mists came down—cold and damp and bringing a slight smell of sulphuric acid. The domestic animals were as frightened as the people. They stayed near their owners and near the lights and refused to go away even when dragged. About two o'clock a dim light appeared in the East and the cocks began to crow. . . .[24]

Given that the eruption of Thera was more violent, and its distance from Crete less, than even described, there is little doubt that the Cretans lived through moments of equal, if not greater, terror. When, moreover, great earthquake shocks followed, it was quite natural that some of the survivors abandoned the cursed island in search of new homes. May we suppose that the Keftiu of the Egyptian frescoes were Cretan refugees who settled in North Syria or somewhere thereabouts ? And does the tradition that Crete remained devoid of inhabitants from that time reflect some vague reminiscence of this event ?[25] The period of the 'Palace Style' suggests that a fairly powerful dynasty still reigned at Knossos but it already looks as though Crete were no longer invulnerable. It would appear that the Achaeans first began to descend on Crete. It is now that we note a considerable change in the hitherto peaceful character of the Cretan people. The first graves of warriors furnished with swords and arrows date from this time and the tablets of Knossos present lists of armour, horses and chariots.

In time Crete sank further and further into decay. After 1400 even the palace at Knossos was deserted and simultaneously the great period of Mycenaean expansion began, when colonies were established in Rhodes, Cyprus, Asia Minor and elsewhere. It is not possible that Crete was excluded from this great movement by the Achaeans, and to this are due the Achaean place-names: Μυκῆναι, Ἀμύκλαι, Θεράπνη, Ἠλέκτρα.[26] We need not imagine a wholesale conquest of Crete. It may have been mere colonization, carried out without violence, which resulted in strong trade connexions with the mainland. This explains why Cretan art and even Cretan writing—with the same combinations of letters found on the tablets at Knossos—occur on the Greek mainland. *Mutatis mutandis* we could repeat the well-known phrase *Creta capta ferum victorem cepit.*

A civilization of 2000 years' standing does not disappear without leaving a trace. The Dorians found many products of an advanced civilization, and therefore progressed quickly. They learned, for

[24] Verbeek, *op. cit.* 33–40.

[25] Herod VII, 171.

[26] A. Fick, *Hattiden und Danubier*, p. 9.

instance—alone of all the Greeks—the science of archery ;[27] to keep slaves under more humane conditions than existed anywhere elsewhere in Greece ; there they found music and poetry. Finally, in the island of Minos, the great law-giver, they developed the famous laws which were later borrowed by their fellow tribesman on the mainland. Who knows how many of the clauses of the famous inscription of Gortyna are of Minoan origin ? As for the religion, it has already been proved that most of its elements are derived from the Minoans. The Dorians in Crete continued to frequent the caves which had been sacred to the great Minoan goddess. It seems as if the race were not changed and as if no other change took place later. No break in the cult is perceptible from the height of Minoan times to the last days of Graeco-Roman antiquity. Many of these caves are already known and more are continually coming to light.

NOTE.—The Editors wish to point out that in their opinion the main thesis of this article requires additional support from excavation on selected sites. They hope that such excavations will in due course be carried out.

[27] Of this problem, which had already drawn Pausanias' attention (1, 23, 4), I think Minoan tradition provides the only reasonable explanation. The Minoans are represented as energetic archers and huntsmen from the Early Minoan period to the very end of Minoan times.

A Bird's-eye View of Opis and Seleucia

by Clark Hopkins

Director of the Michigan Excavations at Seleucia

In 1927 Professor Waterman of the University of Michigan undertook a special study of Babylonian topography for the purpose of locating the site of Opis (Babylonian Upi, Upa) the older Sumerian Akshak, capital of one of the oldest kingdoms in Mesopotamia.[1] The general location of Opis is well defined by the inscriptions of Nebuchadrezzar at Wadi Brissa and Nahr el-Kelb, who states that for the defence of Babylon he built a wall from Sippar on the Euphrates to ' above ' Opis on the Tigris, a distance of five *beru*, about twenty miles. Since with the help of this brick-faced earth wall he fashioned great bodies of water ' like the sea ', twenty *beru* in length (probably in circumference), it is clear that a watercourse formed part of this system of defence. Xenophon mentions Opis as located above the modern Bagdad, but Strabo clearly places it in the district of the later Seleucia, stating[2] that the Tigris was navigable as far as Opis and Seleucia. In another passage[3] Strabo, following the geographer Eratosthenes, mentions the ancient wall (the wall of Semiramis, he calls it) as being in the narrowest part of Mesopotamia, and Opis as 200 stades (about twenty-three miles) distant from the Euphrates. Since the present distance from Sippar, whose location is known, due east to the Tigris at Ctesiphon, is between twenty-one and twenty-two miles, it seemed clear that the mounds of the ancient city lay on the west bank of the Tigris, across the river but not far distant from the later Sassanian capital. For the Hellenistic period Pliny offers the information[4] that the Greek capital of Seleucia was founded at the confluence of a canal and the Tigris : *in confluente Euphratis fossa perducta atque Tigris*, and Ptolemy[5] mentions a royal river, *βασίλειος ποταμός*, as starting from Sippar (*Σιπφάρα*), flowing through Seleucia and entering the Tigris at Apameia. If this ancient

[1] Leroy Waterman, *Preliminary Report upon the Excavations at Tel Umar, Irak*, University of Michigan Press, 1931, pp. 1 ff.

[2] XVI, 1, 9. [3] II, 1, 26. [4] VI, 5, 89. [5] V, 17, 5.

royal canal paralleled very closely the course of the wall and water courses of Nebuchadrezzar, Opis and Seleucia should lie close together or perhaps are to be identified as one and the same. Particularly significant, therefore, seemed the extensive remains of an older canal observed by the Iraq Department of Irrigation and especially by A. Gray, British engineer in charge of the new canal. The older canal, lying close beside the royal canal (Nahr Malcha) of more modern times, turns sharply south before reaching the river to discharge itself into the Tigris some distance below Ctesiphon; but in Hellenistic and pre-Hellenistic times the stream could easily have reached straight forward to the river above Ctesiphon or, with a very slight turn to the south, to the bank immediately opposite Ctesiphon, where we know that Seleucia lay.

For these reasons the district along the river opposite the great arch which marks so signally the site of ancient Ctesiphon, was scrutinized with particular care for traces of the lost city Opis. Almost immediately opposite the arch of Ctesiphon lie two great mound complexes, the one separated from the district around the arch only by the river, the other about a mile from the river bank and slightly north as well as west of Ctesiphon. If Seleucia lay directly across from Ctesiphon then the mounds further from the river hid an unknown city. And a city of importance it was, for the high ground stretched for half a mile and more to either side of the Arab hill of Tell Umar which marked the north centre of the mound, and back into the plain for a mile and a half in a great rectangle. Professor Waterman perceived at once that the river must at one time have washed the edge of the city, for only the river could account for its size and importance. If there was some question whether this mound concealed the old Seleucia rather than Opis, doubt was removed by the investigations of German scholars, who agreed in placing ancient Seleucia on the banks of the Tigris, and who in 1927, desiring to uncover Seleucia, requested permission to excavate the mounds directly across from the modern Ctesiphon.

Even before excavations began, however, air-photographs of the district, taken by Wing Commander Insall, v.c., stationed at Bagdad, revealed the real state of affairs. From the air a regular pattern of streets was clearly visible, cutting a large part of the Tell Umar complex into a series of rectangular blocks in the Greek (Hippodamean) plan. This was strong evidence that the Greek city actually lay in the Tell Umar complex and that the mounds nearer the river were actually only a part of the ancient Ctesiphon. Excavations very quickly proved

the truth of this hypothesis.[6] The river had changed its course not from Opis to Seleucia, but from Seleucia to the middle of Ctesiphon, so that only half of the great Sassanian city now lies on the east bank.

If, however, the Tell Umar mounds embraced Seleucia, they did not necessarily enclose Seleucia alone, and Professor Waterman very reasonably suggested that Opis lay beneath the whole or a part of the Greek city. The absorption of Opis by Seleucia would account for the disappearance of Opis as a city and would explain the complete separation of the tradition of the name from the site. Excavations were therefore continued by the University of Michigan, under the direction of Professor Waterman, but with some alteration of plans in recognition of the fact that the Greek city must be excavated at least in part before any more ancient site could be uncovered.

Work of the first seasons at Seleucia was devoted in part to trial trenches designed to establish the identity of the site, to discover the depth of ancient strata and if possible to locate remains of the older city Opis. In addition, near the centre of the city, a block distinguished in the air views by more prominent mounds was chosen for systematic excavations. When in the 1936–37 season new areas for excavation were to be determined upon, a review of the topography of the site in the light of the first excavations became imperative. For this new task air views were of supreme importance. We were fortunate indeed in obtaining through the kind offices of Major MacDonald, who held a command in Bagdad, splendid air-views of the site from the collection of the Royal Air Force. Photographs taken shortly after rains, before the earth was completely dry, revealed more sharply than before the outline of blocks, and views taken with the sunlight slanting across the mound brought into sharper relief ridges and depressions within the city.

The network of streets forming rectangular blocks is most distinct in the centre of the city in the vicinity of the block excavated. Reuther saw in the early air-view two main streets crossing one another in the centre of the metropolis. In reality one of his main streets, that running in general north to south, is a late canal, probably of Sassanian times, which follows only in part the line of an ancient street through the city and opens into the Tell Umar area. Actually there were two great thoroughfares running in parallel lines through the city from the west and dividing it into three parts. Between these

[6] ANTIQUITY, 1929, III, 434–51, ' The German Excavations at Ctesiphon ', by Oscar Reuther.

two avenues or canals the area is almost level, and the block lines are most easily distinguishable. Since excavations in the block revealed a Parthian palace overlying a group of houses, it seems reasonable to assume that the block space between the two thoroughfares comprised the chief residential district of the city.

The most prominent feature in the north section of the city is the mound of Tell Umar located in the centre of this side of the site and partly cut on the northeast by river floods. It is an artificial mound made of a great circular mud-brick wall filled with loose earth and debris, except in the centre where a small square tower of mud-brick was erected. It was constructed in its present form apparently in early Sassanian times but for what purpose partial excavations have not revealed. Possibly it was the tomb of a prince, or perhaps a great altar reminiscent of the ziggurat. Ammianus saw on the Euphrates at the entrance to the Royal Canal a lofty tower like a lighthouse.[7] Possibly at Seleucia in Sassanian times, where one branch of that great canal met the Tigris, a second tower was erected to serve as lighthouse and watch tower.

Whatever the purpose of this tower may have been, it stands in an area distinctly lower than the level of the residential district and the surrounding mounds, an area, therefore, which must have been distinguished even in the older Hellenistic city from the normal block-system.

At the northeast corner of the site where the rectangle of the city lies closest to the oval enceinte of Ctesiphon probably stood, as Reuther suggests,[8] one end of the stone bridge mentioned by ancient authorities as connecting Seleucia and Ctesiphon. Between this bridge-head and the east section of the more northern of the two thoroughfares, there may be remarked on the air-views a rectangular depression comprising several blocks. In the centre of this low area a small oval mound stands out rather prominently. Less distinct is a rather similar area on the other side of Tell Umar, an area which adjoins the northern thoroughfare and is almost equidistant from the centre of the low area around Tell Umar. In the little mound in the northeast corner excavations undertaken as a result of this survey have revealed a Parthian temple and small theatre for religious rites standing in the middle of a great precinct. It seems clear that these remains rest above an earlier Greek temple of baked brick, though excavations have only touched these earlier remains. In the second rectangular area

[7] XXIV, 2, 7.

[8] ANTIQUITY, 1929, III, 439.

the mound has yielded a second small theatre, but the arrangement of the temple has not been established. The relatively low rectangular areas around these mounds are accounted for by the great precincts obviously assigned to the temples early in the history of the city, and so kept clear of the building and rebuilding in successive epochs. Since this is so it seems plausible to assume that at least a part of the low area around Tell Umar is due to a similar precinct. Excavations in the vicinity of Tell Umar have not brought to light as yet a temple, but have disclosed a number of finds which suggest religious worship.

Undoubtedly many temples were erected in the vast city of Seleucia, but as far as we can judge from the air-view of the city at present the chief sanctuaries lay in the north quarter. In the Hellenistic capital of Pergamum, the chief temples and the palace were placed on the acropolis, which lay above the residence-blocks and the market-place. In the Hellenistic commercial cities, the market place in the form of an open rectangle was situated near the port or along a thoroughfare of traffic, and the private houses and temples divided the rest of the city proper. If in Seleucia the residential section lay across the centre of the city, and the chief temples were erected in the north section, then perhaps we may look in the south quarter of the city for the civic centre, which would include the market place, the senate house and record offices.

Here in the south sector we find in fact a broad east–west thoroughfare bordered with irregular mounds of considerable size. Not far from the centre of the city, on the north side of this thoroughfare, lies an open area occupying the south ends of two blocks and surrounded by impressive mounds on three sides. In shape it corresponds to the rectangular form of a Greek market-place, and its position with open side on a main line of traffic corresponds exactly with our information of the location of Greek agoras. Further evidence that it was at least an important centre may be adduced by the width of the street, which debouches into the middle of the north side of the area. This street, at the point where it passes the block excavated, is almost three times the breadth of any one of the other three streets which circumscribe the block. Surely then this north–south street was a great artery of traffic and presumably led to a civic centre of importance.

The rectangular open place or market is faced across the thoroughfare by a semicircular mound which suggests the outlines of a civic theatre. A small trench in the north corner of this mound had in previous seasons disclosed a series of three doorways of baked brick

separated by small sections of walls adorned with double engaged columns. The gates themselves are fifteen or twenty feet above the last ground level of the city and rest on mudbrick and débris. Quite possibly, then, they formed part of a theatre entrance, giving access to the higher seats and approached either by a sloping ramp or staircases which have now disappeared. In some of the mounds round about may be located the senate house, the law courts, and other buildings of the civil administration. Possibly to the large oval depression northwest of the market square the stadium and gymnasium should be assigned. Our excavations are far from complete enough to identify individual buildings, but every indication in a broad survey points to a series of large non-residential buildings in the southern sector of the city and it is these buildings which would presumably have formed the civic centre.

One more observation might be made in respect to this quarter. The old bed of the Tigris touched the northeast corner of the city and then swung along its east side, where presumably, as Reuther suggested, the harbour should be located. The two great thoroughfares of traffic, running straight through the site from west to east, both therefore end at the port. The air-photographs show that the banks or sides of these two avenues are quite different in appearance, for along one there is a great series of irregular mounds, along the other the ground is for the most part level, rising little if at all above the artery level. Could this difference be due to the fact that one was a canal, the other a broad street ? We have Pliny's authority that Seleucia was founded at the confluence of the Tigris and the canal from the Euphrates. A branch canal from this stream would allow traffic from both rivers to enter the city. Many of the mounds along this waterway are presumably public buildings—the market, the theatre, senate house, etc.—but others may be merely dykes along the water-course or means to prevent flooding when the rivers rose. It seems significant that the great avenue through the city that best fulfils the specification for a waterway debouches at the south end of the harbour where one would expect the entrance to be, and the other thoroughfare leads to the district of the bridgehead to Ctesiphon.

After stating the location of Seleucia Pliny goes on to say that its inhabitants numbered 600,000 and that in form the walls resembled an eagle with outstretched wings : *situm vero moenium aquilae pandentis alas*. Were he considering the city as a whole, one would be very much tempted to understand the figure of comparison not as the soaring

eagle, but the standing eagle with high-shouldered wings thrust out to either side, as it is so commonly represented on Hellenistic and Roman monuments. The three broad divisions of the city fit admirably the eagle's body flanked with vertical wings ; the curved breakwater of the harbour would form neck and head. The particular mentions of walls, however, may mean that the head should be located at the bridge and the wings are the lengths of walls along the river bank to either side. At present the mounds form almost a right angle at the south corner where the bridge lay ; but in ancient times the angle was probably much less sharp, as the destruction of a part of Tell Umar itself by floods suggests.

The topography of Seleucia is of particular interest, not only because it was one of the greatest of Hellenistic capitals, named by Strabo[9] with Alexandria, and ahead even of Antioch in size, but also because it is one of the few great Hellenistic cities laid out on flat ground. The architects of Alexandria were circumscribed by the limits of the island ; the experts at Seleucia had the whole broad plain of Mesopotamia in which to lay the scheme of their city.

We can only admire the skill with which they performed their task. The residential district through the centre of the metropolis gave easy access to either of the two great thoroughfares through the site. The market-place and civic buildings were established along one of the city arteries ; the chief sacred precincts were separated from the private houses by a broad avenue. If we may judge by Pergamum, the palace should be located close to the temples and presumably near the centre of that district. In the vicinity of Tell Umar, I am therefore inclined to place both the palace and a temple. From the palace might run a north–south artery leading southwest to the ancient Babylon. Not only, then, do the carefully drawn streets form a regular network, but the whole city exhibits the balanced plan of a master architect. The great skill in city planning which must be assigned to Hellenistic architects in view of excavations in lesser places is perhaps one of the best reasons why we may expect the logical scheme one sees outlined in the air-map to emerge eventually as the actual plan of the ancient city.

One might object that we are basing the scheme of the Hellenistic city on air-views which at best show only the aspect of the site after some centuries of Parthian and perhaps Sassanian domination. This is true, but our excavations have revealed thus far very little change in

[9] XVI, 2, 5.

the general aspect of the city in the course of its history. In the block a major conflagration occurred in 143 B.C. just before the city was taken by the Parthians. In A.D. 60–70, after the city had lost much of its autonomy, the style and plans of houses were radically changed. The city was sacked in 116 by the army of Trajan, in 165–66 by the soldiers of Verus, and again just before 200 by Septimius Severus. In the whole long course of its history the outlines of the excavated block remained the same except for slight widening or narrowing of the surrounding streets. The low ground of the temple areas bears witness to the great length of time during which these precincts were kept clear of building, and their great size suggests their allocation to the gods before the city was crowded with residences. Our evidence is very strong, therefore, that despite the city's many vicissitudes of fortune the general plan remained intact.

One fundamental problem remains unsolved: the location of the ancient Opis. A few Babylonian seals have been recovered from Seleucia; many baked bricks re-used in building bear the stamp of Nebuchadrezzar; the minor finds include a number of items which belong to a pre-Hellenistic era; nowhere is there clear evidence of occupation before the Seleucids. Possibly the location of the city gradually shifted, following a gradual change in the river bed. Some air-photographs show that the block system extended beyond the present mounds into the irrigated land southwest of the mounds of the city. Even here the surface sherds do not justify the hypothesis of an early Babylonian town.

To locate Opis and Seleucia on the same ground required the identification of the ancient wall of Nebuchadrezzar running from Sippar to Opis with the Hellenistic canal which ran to Seleucia perhaps from Sippar. This assumption is by no means certain, particularly since the two water-ways were built for quite different purposes. A good deal of doubt is placed upon the hypothesis, moreover, by remarks of Strabo. When Strabo states that the Tigris was navigable as far as Opis and Seleucia, the passage does not necessarily mean that they were separated from one another, but it does *suggest* that they were distinct, and moreover that Opis lay south of Seleucia. When, however, Strabo goes on to say that Opis was a village emporium for the surrounding district, ἡ δὲ Ὦπις κῶμα ἐμπόριον τῶν κύκλῳ τόπων, he apparently differentiates it sharply from the much more important city of Seleucia. Nor would the close approximation of distance between Sippar and Opis on the one hand, as given in the inscriptions of Nebuchadrezzar and the account

of Strabo, and the actual distance between Sippar and Seleucia on the other, cause serious difficulty, for, as the map shows, the distance to the Tigris from Sippar would be little increased if the wall ran to a point a few miles either below or above Seleucia. Air-views may show, moreover, that windings of the river in ancient times brought the Tigris actually closer to Sippar at other places than the point due east where Seleucia lay. We may hope that such an air-survey will reveal to us not only the old river bed, but show more clearly the course of old canal systems and perhaps even the straight line of the embankment of Nebuchadrezzar. We know the location of Sippar, whence the wall started—its length as given precludes many turns and presumably its course was straight; where it reached the Tigris, or immediately below it, lay Opis. From the air we should obtain a final answer to the problem. It may still lie beneath Seleucia, or it may lie some distance away, presumably towards the south. Possibly now variations in the river bed have even changed its location from the west to the east bank as they changed it for a period in the time of Tiglath-Pileser I.[10]

Many seasons of excavations are required in the great Mesopotamian capital of the Greeks and Parthians before we can speak with certainty of the city plans. It may be that these seasons will show our analysis of the arrangements of the city drawn from air-photographs to be quite erroneous. Meanwhile we can only recognise the tremendous assistance air-views have rendered our work in the past and look forward confidently to our campaigns in the future. At least we obtain from them the working hypothesis outlined above, an hypothesis which in itself is no mean advantage in so vast a site. I am happy indeed to have this opportunity of acknowledging our great debt to the Royal Air Force in Bagdad and of expressing our appreciation for the very cordial co-operation which all the members of that organization have unfailingly accorded our expeditions.

[10] D. D. Luckenbill, *Ancient Records of Assyria and Babylonia*, Chicago, 1927, p. 309.

Notes and News

LOAN-WORDS IN SEMITIC LANGUAGES MEANING 'TOWN'

In ANTIQUITY for September (p. 313) Dr Th. H. Gaster mentions the discovery of the word AWARI (=field) in the non-Semitic texts of Ras Shamra. This word was already known from Horrian texts, and is regarded as of Luvian origin by Dr Emil Forrer, who long ago pointed out that it explained convincingly the name Αὐάρις (AWARIS) of the Hyksos settlement on the eastern margin of the Nile delta. In this case the name is well applied to a 'camp' (Latin *campus*=field), such as that at TELL YAHUDIEH excavated by Sir Flinders Petrie and identified by him with Awaris.[1]

The Hyksos are generally supposed to have been Semitic invaders of Egypt who came from the eastern deserts and steppes. It is quite likely that such nomads should have had to use a Luvian, Horrian (Mitannian) loan-word for a fortified permanent settlement. It is, indeed, well-known that the Hebrew word 'IR for a town or city is such a loan-word; IRU or 'IR being the Sumerian URU (=city) pronounced üru with the mortified vowel ü, as in München, Bavarian Minka, for Munich. This word occurs in the compound IRU-SHALEM which may mean either 'city of the god Shalem', a divinity found in the Ras Shamra texts mentioned by Dr Gaster (p. 311), or 'city of Peace', *i.e.* 'city of asylum' (ἄσυλον) or possibly both.

Dr Forrer was also the first to recognize QARTH, the other Hebrew and Phenician word for 'town', as another such loan-word. It occurs as the name of the celebrated Phenician colony QARTH ḤADASHA (=Carthage[2]), meaning New Town, and differentiating it from 'ATIQAH (=Utica), meaning 'the Old One'. It appears to be derived from the Indo-European language of the Philistine settlers on the Phenician coast or from that of the Hittite invaders of Northern Syria. It is obviously identical with the 'Hittite' *i.e.* Nashili word GURT-ASH in

[1] British School of Archaeology in Egypt, 12th year, 1906. *Hyksos and Israelite Cities*, by W. M. Flinders Petrie, pp. 1–27.

[2] There was also another Carthage, in Cyprus; it is mentioned, as KAR-TI-ḪA-DA-ASH-TI in a cuneiform inscription of Assurbanipal; see Oberhummer article 'Kypros', Pauly-Wissowa, *Realenc.*, XII, col. 102, line 9. Incidentally the Roman form CARTHAGO for QARTH ḤADASHÅH proves that the Latin G was pronounced as a palatalised ǧ, just as it shows that the Phenicians of the West pronounced the long ā (qāmes)—like the modern Ashkenazi—as an å or ō.

SHARRAZISH GURTASH, 'Upper Town'[3] or 'Hill Top Town' (Greek Ἀκρόπολις). We may also compare the place-names Γύρτων, Γυρτώνη (GURTON, GURTONI) in Thessaly, Κυρτώνη (KURTONI) in Boeotia, CORTONA in Etruria[4], possibly CORD-OBA in Andalusia[5]; the Slavonic GRAD, as in BELGRAD, the White City, NOWIGRAD, the New Town, STARIGRAD, the Old Town; Russian GORODŬ, town, as in NOVGOROD, the New Town, GORODISHČE, walled village[6]; Lithuanian GARDAS, enclosure; Gothic GARDS; German GARTEN, as in Stuttgart, Mömpelgart, Stargard (from Slav. Starigrad); English GARDEN, Gaelic GORT (diminutive GORTAN), a field, garden; French JARDIN, Old French GARDIN with which may be compared Lake Garda and Gardone in Upper Italy (Gallia Cisalpina); Latin HORTUS; Low Latin CORTIS, whence English COURT, French COUR. In ancient Crete, from which island the Philistines came to the coast of Palestine[7], we find a GORT-YN (with which GORD-ION in Phrygia may be compared) and a KAIRAT-OS, the old name of Cnossos; with the last compare the Hebrew QARIATH (which became QARIAH when the old feminine ending -ATH was worn down to -AH), and the name PHONO-KERATOS which was the Greek transcription of the Iranian VANA-GERD.

The dictionary of Hesychios has a gloss—Κέρτα. Πόλις ὑπὸ Ἀρμενίων: 'Kerta, a Town (is thus called) by the Armenians'. Strabo (XI, 7, 26, p. 508) mentions a town Karta in Hyrcania, with which may be compared the place-names Χαρα-χάρτα, Βατρα-χάρτα, Πασα-κάρτα, Τιγρανο-κάρτα (modern Tigranskert), Ἀρταγι-γάρτα (modern Ardashi-Gert), Δαδο-κέρτα, Φωνο-κέρατος (modern Vana-gerd), Melaz-gerd, Manawas-gerd, preserving the old Chaldic royal name of MENUWAS, Greek MINYAS

[3] *Keilinschriften aus Boghazkoej*, IV, 4; II, 61; E. O. Forrer, *Forschungen*, II, 46; A. Goetze, *Mitt. d. Vorderasiat. Ges.* 1936, 34, 2, p. 66, quoting *Keilinschriften aus Boghazkoej* V, 6; III, 33.

[4] Charles Autran, *Introduction à l'étude critique du nom propre Grec* (Paris, Geuthner), pp. 204, 464.

[5] See below p. 452, note 15 on KERK-OBA in Arcadia, CRAC-OW in Poland and p. 454 on the meaning of the -OVA ending.

[6] This refers to the so-called 'fluchtburg' or refuge-camps, as they were formerly regarded; it is now known that they were simply villages, permanently inhabited, surrounded by a protecting wall. See Schrader-Nehring, *Reallexikon der Indogermanischen Altertumskunde*, 2nd edn., II (Berlin, 1929) 434, plates XCVIII ff.

[7] GENESIS, 10, 14=I CHRONICLES, 1, 12. Transpose: 'and Pathrusim and Casluhim and Caphtorim, out of whom came PHILISTIM'. CAPHTORIM, cuneiform KA-AP-TA-RA, hieroglyphic KPTR is Crete, the hitherto unidentified enigmatic Kasluḫim are simply 'waste lands' (cuneiform KISLAḪ *Mitt. d. Vorderas.* Ges. 34, 1, 1930, p. 82, line 35).

(ΜινύFας) and MINOS (*ΜίνFως); Γιλι-γέρδα, Δασδα-γέρδα (modern DISCARTA); VAI-KERETA; SHAMIRA-GERD, the Town of SEMIRAMIS; EROWANS-GARD.[8]

Another such loan-word is the Aramaean (Syrian) word KĔRAK for a fortress, as in the Crusader castle Crac des Chevaliers,[9] or a fortified citadel; KARKA, a town, principal town or metropolis is another such. These words must be related to the Egyptian GRG.T, Coptic KERKE, settlement,[10] whence came the denominative verb GRG, to found, take possession of, GRG PR, to found a house, a family, settle down as a married man, marry; and the place-names GIRGE, GIRGAH, near Abydos, in Upper Egypt; GERG-IS, GERGI-NA, GERG-ITHA near Lampsakos and the region GERG-ITHIA in the Troad, all of them authoritatively[11] stated to have been settled by Cypriots. Compare also the name GERG-ITHES, townsmen, applied to the lower classes, that is, to the native population of Miletus as distinct from the aristocratic Ionian invaders; and the GIRGASH-ITES or GIRGAS-ITES of Palestine[12]; also the GERG-ITHI-ON near Larissa in the neighbourhood of the Aeolian Kyme, and the town GERGIS on the coast of Libya (the modern ZARZIS or DJERDJIS); also the 'Hittite' place-name KARK-EMISH, ancient GARG-AMISH, meaning township or possibly metropolis (mother-town)[13] and formed like the name of the goddess ARTEMIS which can now be seen to be derived from the

[8] See Haxthausen, *Transcaucasien*, II, 36; Brunnhofer, *Arische Urzeit*, 14.

[9] Described in an early essay by T. E. Lawrence, posthumous edition (Cockerell Press 1936). See T. S. R. Boase, *Journal of the Warburg Institute* 1939, II, 16, note 2.

[10] A list of Egyptian place-names compounded with the element KERKE will be found in Grenfell and Hunt's *Tebtunis Papyrus*, I, 383.

[11] See Pape-Benseler's *Dict. of Greek Proper Names*, and the respective articles in Pauly-Wissowa's *Realenc. d. Klass. Altertums*, giving authorities for those place-names here quoted without such.

[12] GENESIS X, 16: XV, 21; DEUTERONOMY, VII, 1; JOSHUA III, 10 and XXIV, 11; I CHRONICLES I, 14.

[13] -AMISH, -EMISH might be composed of the well-known -ISH suffix and the widespread baby-language gloss ('Lallwort') 'AM, 'AMMA, Ἀμμάς. In Biblical Hebrew 'EM, 'mother' is actually used of a 'mother'-town. The compound KARK-EM-ISH, GARG-AM-ISH='Town maternal' like CITTÀ MADRE, CITÉ MÈRE and not like our 'mother-town'. Greek μητρόπολις would be formed like the common place-name Ἀστυ-παλαία (instead of Παλαιό-πολις) the un-Hellenic, *i.e.* pre-Hellenic construction of which has long been noticed, *e.g.* by August Fick in his *Hattiden und Danubier* and *Vorgriechische Ortsnamen*. On the face of it GARG-AMISH might be compared to PERG-AM-OS, PERG-AM-ON—PERG being evidently πύργ-ος, BURGH, BROCH, etc.—but PERGAMOS (the son of Neoptolemos) might stand for *PERGAMUWAS, PRIAMOS for *PRIAMUWAS as PYRAMOS is PURANDA-MUVAS according to E. Forrer.

Horrian (or Mitannian) word ARTE, city[14] (ANTIQUITY, Gaster, p. 313). Artemis was 'she of the city', the Πολιάς, having charge thereof (Ephesus, Priene, Brauron, etc.) or possibly the 'Metropolitan' goddess worshipped by all the colonies a 'mother-city' had sent out. Other examples are the township Κέρκ-οβα in Achaia, *i.e.* KERK-OVA with the suffix –OVA as frequently occurring in place-names in the Hittite tablets of BOGHAZKÖJ[15] as it does on the map of modern Poland, and the Slavonic (Polish) fortress Cracow, Krak-uv.[22]

In the light of present knowledge it would appear that KRK, like QARTH, is an early Indo-European word—akin to the Latin *circus* and *circa*, around; the Greek κίρκος, κρίκος, a hook, and the Albanian (=Old Illyrian) KARK, a curve or curvature—denoting originally the circular walled towns characteristic of Syria[16] and the ancient East

[14] Sir Charles Low compares the Turkish word ORDU, camp, Persian ôRDÛ, court, camp, horde of Tartars, whence is derived the term URDU ZABAN, camp language, to describe the Persianized Hindostani (written in Arabo-Persian characters) used by the educated Moslems of India. This is a *lingua franca* which spread from the Moghul 'camp' or 'court' of Delhi'. The English and German words 'horde', describing a savage 'tribe' (originally of Mongols or Tartars) are well known, and are generally recognized as loan-words from Turco-Tartar ORDÛ. Comparison with the Horrite ARTE, city, is all the more legitimate since Dr Emil Forrer is inclined to consider the Horrians as hailing from Central Asia. On the other hand we find at Sparta a goddess ORTH-IA, whose certainly pre-Hellenic name has nothing to do with ὀρθός 'upright' since there is no evidence that she was ever worshipped in the shape of an upright pillar. She is identified with ART-EMIS, a fact which is easily understandable if both ORTH-IA and ART-EMIS mean 'she of the city', Πολιὰς [θεά]=[the goddess] of the city, or 'of the Metropolis' and if in the various dialects of the 'Horrian' language an ARTE stood beside an ORTHE, both meaning literally 'camp, court'. It is remarkable that we find in German —and only in the recent high German—the words ORT, ORTSCHAFT, town, township, which cannot be derived (Kluge's *Etymologisches Wörterbuch*, 9th edition 1921, p. 336) from ancient high German *ort*, Anglo-Saxon, Old Saxon, Middle-English *ord* 'point' 'corner', but must be a Tartar loan-word like *Horde*. Then there is pasture, grass [land] or grass [plot], grazing: Latin HORTUS, Italian ORTO, garden, alongside with middle Latin CORTIS, CURTIS, Rumanian CURTEA, French COUR, English COURT, O. Engl. GEARD, hedged inclosure, English YARD, an inclosed place or forecourt of a building. One wonders, therefore, whether the Horrian ARTE, Turkish ORDÛ, Persian ôRDÛ, Spartan ORTH-IA might not somehow be connected with the Indo-European group GURT-ASH, GORD-ION, QARTH, KERT, GERD. Being nomads like the Semites, the Turco-Tartars and Mongols might have borrowed the Iranian word ôRDÛ.

[15] *E.g.* ANK-UWA, ANS-UWA, ḪASH-UWA, HIND-UWA (obviously connected with the river Indos) in Caria; ISH-UWA (obviously connected with the river Issus, site of Alexander's famous victory), LULL-UWA, SAPIN-UWA, TUWAN-UWA (=Greek TYANA), UGAB-UWA, ZINZIK-UWA.

[16] See *e.g.* the plan of Sam'al in Northern Syria: Ebert, *Reall. d. Vorgesch.* I, plate 102.

generally. A good example is Erbil (Arbela) in Kurdistan, a modern circular walled town standing on a debris-mound of immemorial antiquity (ANTIQUITY, 1936, X, 136, plate I). On the early Babylonian map found at Nuzi (*c.* 2500 B.C., ANTIQUITY, June 1936, X, 226, pl. VIII) the three cities on it are represented ' by circles with their names written within the circles ' just as towns are represented by circles or circular dots on the most modern maps. The early Egyptian hieroglyph , added as the determinative after the proper names of all inhabited places, suggests a circular walled city. The Latin *urbs* ' city ' is probably nothing but a graphic variant of *orbis* ' circle '.

At first it might seem surprising to find an Indo-European, presumably Luvian, loan-word in early Egyptian texts and amongst the names of places on the Libyan coast.[17] But I remember that Dr Emil Forrer has called my attention to the striking correspondence between the common Egyptian verb SDM, to hear, and the synonymous Luvian word ISHDUM-ASHSHUWAR.[18] There are other points of contact between the old Egyptian and Indo-European languages. The Egyptian IRP, the vine, identical with the Greek ἑρπ-ίς occurring in a fragment of the poet Hipponax is plainly an Indo-European word meaning ' creeper ' (ἕρπειν, to creep, Latin *serpo*, whence *serpens*, serpent). Probably the word entered Egypt with the plant, which is not indigenous in the Nile valley. On the other hand in Thrace it grows wild to this day.

A still more important instance is the Egyptian word IW, island or far distant sea-coast. With it may be compared Ἴος, the proper name of an island in the Aegean ;[19] also the Phenician and Hebrew אי, 'IJ, corresponding to the Greek αἶα, originally αἶFα, as in Ἀχ-αία (*Ἀχ-αἶFα), the cuneiform AKH-IJA, AKHI-JAWA or AKHI-JAUWA. Compare too the suffix -AVIA in the composite names of the countries Maz-ovia, Mor-avia, Mold-avia, Scandin-avia, Austr-avia, Act-avia and the unidentified AP-PA-VI-A (read ĀP-AVIA) in the Boghazköj tablets.

The old name for the Peloponnese was Ἀπ-ία. The Achaeans

[17] The Greek Λιβύη, Libya, is obviously a transcription of a native LIB-UWA to which cp. Lieb-au, Ljep-aja on the Baltic coast. As to the meaning of the suffix -UWA, -OWA see p. 454. On the Libyan coast are the Kerk-ennah islands, a name which may well be synonymous with that of the Greek *Cyclades* (κυκλάδες from κύκλος).

[18] ASHSHUVAR is the ending of the Luvian infinitive ; the initial I may well be due to the exigencies of the syllabic cuneiform writing, which could not render a verb SHDUM in any other way ; or it may be the ' anaptyctic ' vowel, facilitating the pronunciation of the two consonants following each other ; or it may be a case like εἰς τὴν πόλιν <Istanbul <Stambul.

[19] Cp. *Oeland i.e.* the ' island ' on the Swedish coast.

('Αχαῖοι) of the Greek texts appear as 'AQI-AVA-SHA, with hieroglyphic ⊿ (=Q), in the inscriptions of Merneptah (*c.* 1220 B.C.). The Latin *aqua* (water), the Illyrian river-name AQUILIS (in Istria) and that of the watering place AQUINCUM (in Pannonia) with its hot springs (-cum to Greek *καῦμα*) correspond to the Greek river-names ACHĔ-LŌOS, ACHĔ-RŌN (near Dodona), ACHI-ROĒ in the Argolid, and to the old Teutonic word AHA, German ACHE, river, occurring in many compound place-names, such as UNTER-ACH, ACHEN-SEE. It would therefore seem quite legitimate to compare the cuneiform API-AWA and the corresponding Greek name AP-IA for the PELOPON-NĒSOS (Pelopian peninsula) with the early Indian -AP, Avestic -APAM,[20] water. Compare also the Thessalian river API-DANOS and the Arcadian river API-DON. The second part of these last two river-names is identical with the Scythian word DAN, Avestic DAN, Ossetic DŌN, river, occurring in such names as DAN-AP-RIS (the Dniepr), DAN-ASTRIS (the Dniestr), ERI-DANOS, RHO-DAN-OS ' the Rhone ' and the rivers Don in Yorkshire, Scotland and Russia.

If that is correct, the -AWA, -AIWA, -IA in AKHI-AWA, AKH-AIA, API-AWA, APIA, originally **αἰFα* watered land or earth, the -AVIA= *AGVIA in SCANDIN-AVIA, AUSTR-AVIA, ACT-AVIA (cp. *ἄκτη*, coast) MOR-AVIA (from ' mor '=a moor), the German AUE, -AU, in place-names such as REICHEN-AU, ILMEN-AU, Dutch and German EI in the word EI-LAND, Icelandic EY-LAND, the Scandinavian word ö in the word ÖLAND, island,[21] and in place-names such as MALM-ö, TROMS-ö, etc ; the OWA in the Arcadian *Κέρκ-οβα*, the Celtiberic CORD-OBA, the Lithuanian LJET-UVA ; the -OW or -UW in the Slavonic CRAC-OW, KRAK-UW,[22]

[20] This Aryan AP[AM] appears as -AB in DO-AB, land of 'two-rivers', PUNJ-AB, land of ' five rivers ' ; it corresponds to the Latin AQUA, Illyrian AQUILIS, AQUINCUM, and the Teutonic AKHA as the word PIDPID in the unidentified language discovered by Emil Forrer (Die Pidpid-Sprache, Forschungen II) on a cuneiform tablet from Boghazkoej, with the Latin QUICQUID and the Nashili KUISHKUISH (Latin QUISQUIS), or the Latin LUPUS with the Greek *λύκος*. Similar correlations are well known to exist between the p-languages and the q-languages of the Celtic group.

[21] The ' s ' in ' island ' (ME. iland, OE. ig-land) is well-known to be due to a confusion with isle, derived from the French *isle*, Italian *isola*, Latin *insula*, the diminutive form of the word *ṇs surviving in Gaelic : YNIS (Welsh), INNIS (Gaedhelic), ENNIS (Irish), INCH (Scottish ; cp. for these words Isaac Taylor, *Words and Places*, 1896, p. 329) and in the Greek *νῆσος*, *νᾶσος* (whence *nash-ili*, the language of the *Νησιῶται*, the Indo-European conquerors entering Asia Minor by way of the ' islands bridge ', the Indo-European language of the Boghazkoej tablets). The g in Anglo-Saxon IGLAND shows that AVIA is derived from an earlier AGVIA.

[22] Popularly derived from the name of a mythic founder of the town, the giant Krak.

would be nothing else than the frequent (Luvian) -OVA, *i.e.* -AUWA in the Boghazköj place-names such as HIND-UWA[23] = FLUSS-AUE, river marshland, just as DAN-UVIUS, DAN-UBIUS, DON-AU would be the DAN-UV-IUS (fluvius), the stream of the alluvial river-land.

The only genuine Semitic word for ' town ' is found in the Accadian language of the Assyrians and Babylonians who say ALU for ' city '. It was long ago correctly explained by A. H. Keane[24] as the cuneiform transcription of 'AHLU, 'AHALU, Hebrew 'OHEL, Arabic 'AHL^{un}, a tent. Nomads would of course call any spot where they had camped a ' settlement ', and as soon as they had captured fortified and permanent settlements, they would adopt the local native (foreign) word in each case to describe them. ROBERT EISLER.

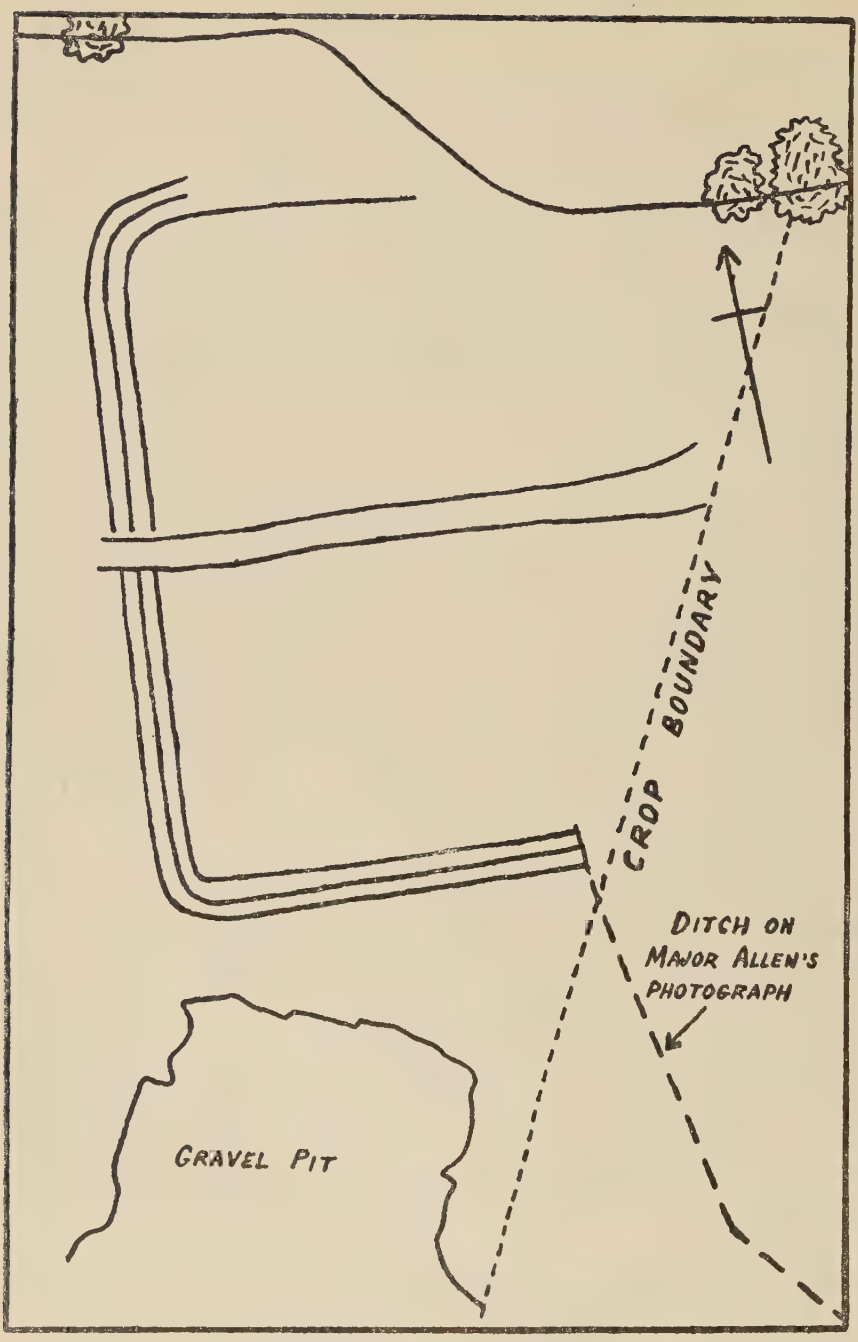
ROMAN CAMP-SITE NEAR CASTOR (PLATES I–II)

Mr I. D. MARGARY writes :—The partial exposure of this camp shown in the plate[1] accompanying Mr Hawkes' article can, after all, be supplemented by one from the earlier set mentioned by him.[2] (PLATE I). This set was taken for me in 1931 by Aerofilms, but I was not then aware of the position of this camp and so its indications were overlooked. Fortunately, it is the western side, poor in the other plate, which is here shown clearly. Three ditches can be distinctly traced, almost continuously, from the centre of the south side, round the curved southwest corner, right along the west side, and just round the curve of the northwest corner, thus completing almost the whole outline of the camp when added to the other photograph. There is also a distinct indication of a centrally placed east-west road, edged by ditches, and a west entrance, but no definite continuation of the road beyond the camp. Mr Crawford has kindly allowed me to see an oblique view taken last July by Major Allen, which confirms these indications (PLATE II). This photograph also shows one of the roadside ditches leading out from the south entrance, as recorded by Mr Hawkes, but it is here seen to turn at a sharp angle towards Billing Brook about 130 yards from the camp. The existence of the second ditch cannot be determined from this photograph. Having studied the roads joining Ermine Street at Castor, I should like to add some comments on Mr Hawkes' suggestion that King Street is part of a pre-Ermine Street military road.

[23] To these Asianic names ending in -AWA, cp. the modern LIET-UWA, *i.e.* Lithu-ania.

[24] *The World's Peoples*, 1908, p. 324.

[1] ANTIQUITY, XIII, facing p. 184. [2] p. 185, footnote.



SKETCH-PLAN OF THE APPARENT AIR-PHOTOGRAPH EVIDENCE FOR THE CASTOR CAMP (cf. PLATE I)

PLATE I

THE WESTERN HALF OF THE ROMAN CAMP-SITE AT CASTOR (*see* p. 455)
Ph. Aerofilms Ltd.

facing p. 456

PLATE II

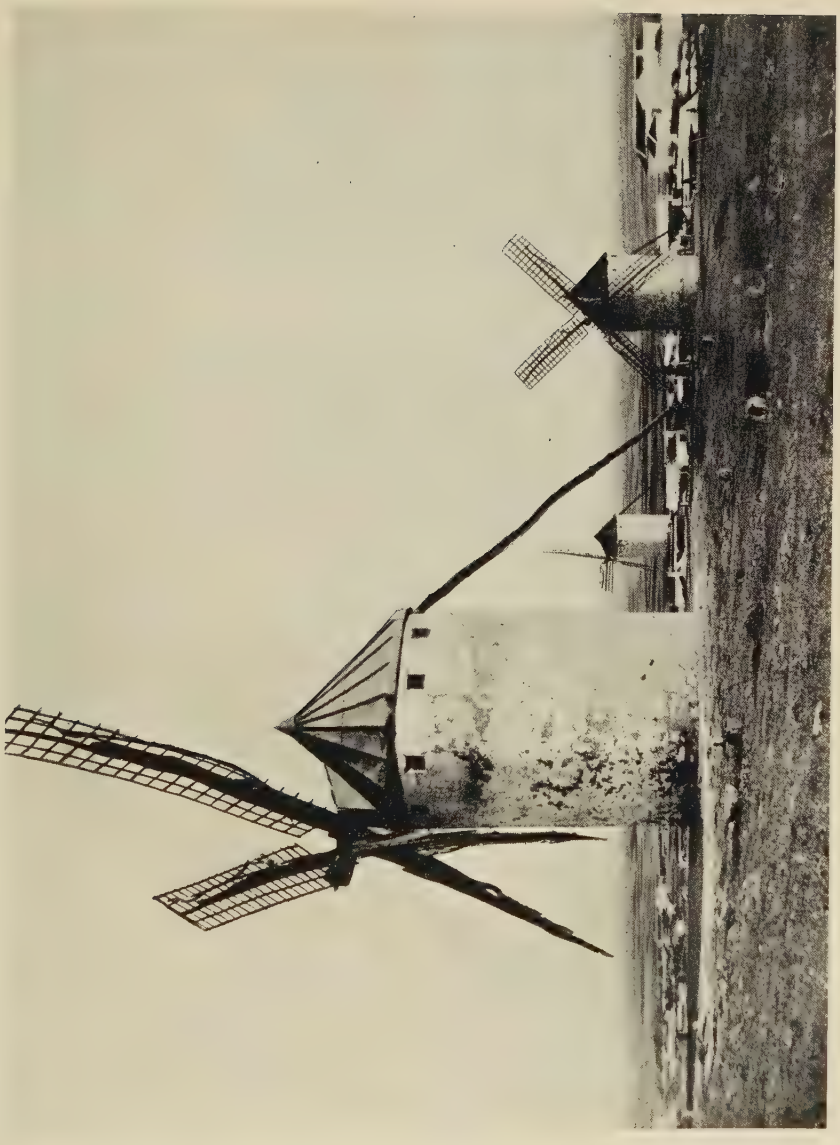
THE ROMAN CAMP-SITE AT CASTOR (*see* p. 455)

WINDMILLS IN CRETE (*see* p. 458)
after Marlin Hürlimann

PLATE IV

WINDMILL BETWEEN LISBON AND CINTRA (*see* p. 459)

PLATE V

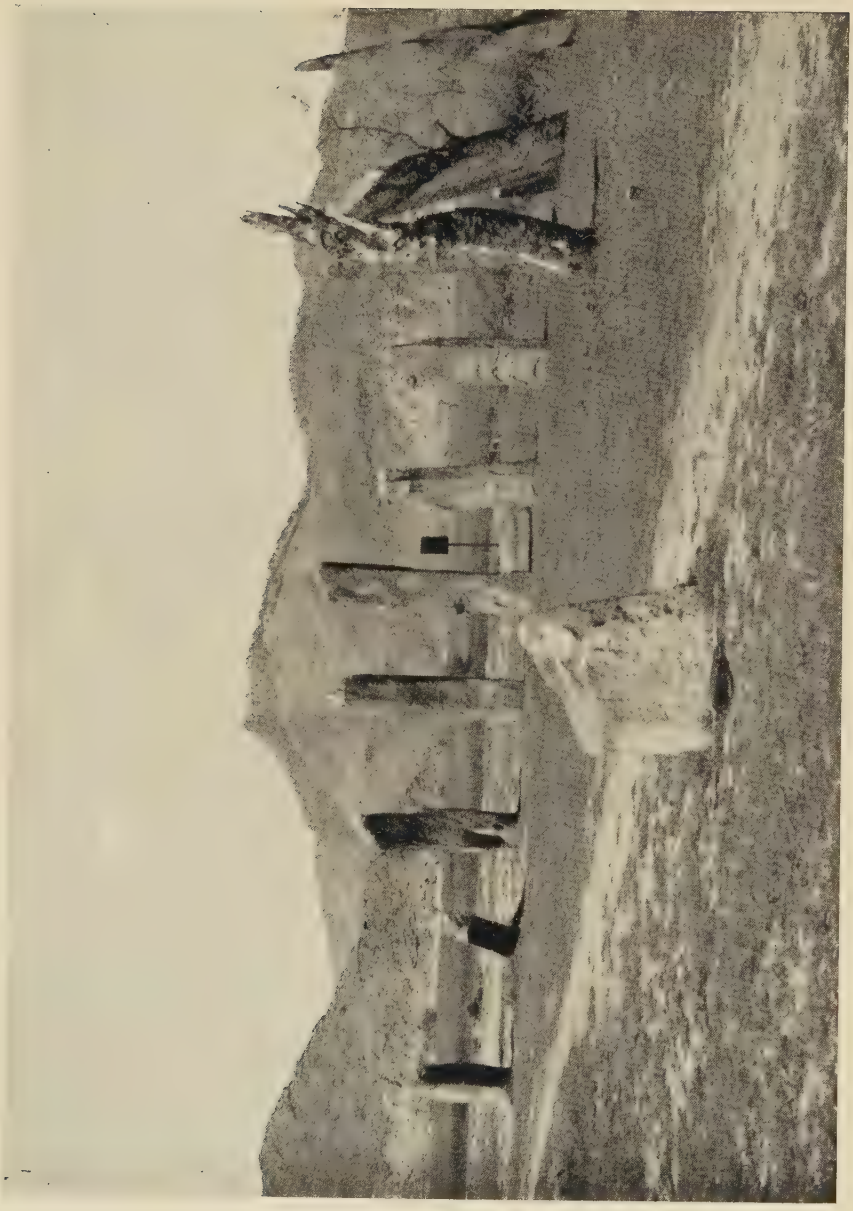


DON QUIXOTE'S WINDMILLS AT LA MANCHA (*see* p. 460)

PLATE VI

TOMB 116, VOUNOUS, CYPRUS: THE FAÇADE AFTER THE REMOVAL OF THE ENTRANCE STONE (*see* p. 461)

INCISED FAÇADE AT LAPATSA, KARMI, CYPRUS (*see* p. 463)



STONE CIRCLE, ASOTA, INDIA (*see* p. 464)
East stone in foreground; the West leaning stone on left, beyond
Ph. D. H. Gordon

It is suggested that the *general* direction of King Street towards Bourn starts from this camp site rather than from the Roman town site called 'the Castles'.[3] The matter is somewhat confused by what appears to be a definite, though slight, change of alignment at the north end of Ailsworth Heath. The *main* alignment north of that point, if carried southwards, meets Ermine Street exactly at the Nene bridge, and would pass just east of the camp, thus suggesting that the crossing was already there when King Street was planned. But the agger can be clearly traced along the west side of Ailsworth Heath for 1½ miles, till it is lost near Upton, and this minor alignment joins Ermine Street over 500 yards north of the river, thus saving that length of road-building if Ermine Street was already there. The existence of the agger on the Heath seems good evidence that this line was followed, but, again, it is aligned 160 yards west of the camp, not directly on it. Neither line can strictly be said to be laid on the camp. If Ermine Street were already there, the whole planning of King Street in this area is quite explicable as shown above, otherwise it seems meaningless.

I agree that the evidence of the legionary tile from Hilly Wood indicates an early date for King Street, but it does not prove that Ermine Street was not early too. The alignment of this road seems fundamental to the Roman planning of the district, and no evidence has yet appeared for any pre-Ermine Street such as Hawkes' argument requires. Until this is forthcoming it seems premature to assume that the short length of road in the south entrance of the camp, not aligned with any other Roman road, is anything else than a connecting link with the known Ermine Street.

The observations in my paper[4] as to the probable *relative* dating of Ermine Street, King Street and the Fen Road (my Road 11) still hold good, save that King Street is now shown to be definitely early. Mr Hawkes has, I think, misunderstood me when he says I contended that Road 11 joined King Street and *not* Ermine Street;[5] it may well have done both, and I did not intend to imply more than that Road 11 was a later by-road which connects with the accepted road system at King Street.

Mr HAWKES comments :—'It is of course quite possible that Mr Margary is right about King Street. My suggestion of its priority was simply a suggestion, which remains to be proved or disproved. The total disappearance of its line between the Nene and the south end of

[3] p. 183. [4] *Antiq. Journ.*, XV, 114–5, 118. [5] ANTIQUITY, XIII, p. 185, footnote.

Ailsworth Heath makes it impossible to say anything more at present. But I think it is always worth remembering that ' what seems fundamental ' in such a piece of Roman road-planning is not necessarily the earliest feature in time, but may have been designed to supersede less satisfactory earlier arrangements belonging to an initial military period. With regard to Mr Margary's Road II, I regret my misunderstanding, and quite agree with his observation. It is in every way most fortunate that his photograph, supported by Major Allen's new one, does so much to supplement that published with my article. May the time for following up these reconnaissances by excavation not be far distant' !

MEDITERRANEAN WINDMILLS (PLATES III–V)

The Islands of the Aegean are full of windmills of a type very different from those of England and the north of Europe. Many of them are ruinous, but a considerable number are still working.

In other parts of the Mediterranean large numbers of ruined towers exactly like those of the windmills of the Aegean Islands are to be seen ; but as a rule it is not possible to say that they were once windmills, though in a few cases the presence of mill-stones on the ground outside their doors shows their origin. The only active mill of the kind I have seen outside the Aegean is in Portugal.

The peculiarity of these windmills is that their sails are set like those of a boat, and not spread on a lattice framework as is the case when canvas is employed for mill sails in England. The mills are many-armed. Some have eight arms, others ten or even twelve. The arms are slender round poles, and they are supported by stays of wire which start from the end of a long pole that sticks out in the axis of rotation. The arms are also tied to one another with wire or iron chains. The sails are triangular, the base being toward the circumference and the apex pointing to the centre. One edge is fixed to the pole and the opposite corner is held by a rope. When the mill is idle they are twisted round the poles ; and when about to be used they are unwrapped to a greater or less extent according to the strength of the wind. All this was demonstrated to me by the miller of Patmos, who stopped his mill on purpose to show me how it worked, and started it again, turning the top to the wind, and showing me all the machinery.

These mills always occur in groups. Some are high up in the hills on the sky-line. But others are near the sea, often, as at Rhodes, set out along the harbour.

The towers of these mills never taper as ours do, but are invariably

cylindrical. They vary only in height, and are very strongly built of stone.

Their works are, as one might suppose, primitive. There is scarcely any metal. The wheels and cogs, as in our own mills, are made of wood. Only the top turns round. It contains the backward prolongation of the great round beam through which the arms are thrust through mortices cut one in front of another. The beam is slightly inclined in the mills that I have examined, and it carries a great wooden wheel, along one side of whose rim the cogs are inserted. These cogs engage with teeth cut in the wall of an upright cylinder which is fixed to the steel axis of the upper mill-stone.

The method of turning the top of a mill to the wind differs in different countries. In some parts of France and Spain a long pole sticking out behind is employed. In England there is often a subsidiary sail which works on a ratchet on the top of the tower.

In Patmos, and presumably in the other Aegean Island, it is effected in a much simpler manner. On the top of the stone wall of the round tower there is a massive ring of hard wood from which project upwards pegs that reminded me of the thole pins of a sea rowing-boat. The conical cap of the mill is supported by a similar ring of hard wood. This ring is just a little larger than that which caps the tower. And it is set a trifle higher, so that its under surface is on a level with the upper surface of the latter. On its inner surface are a number of round holes. When the miller wants to turn the head of the mill to the wind, he just takes a long wooden pole, inserts the end into one of the holes, and using a peg as a fulcrum, levers the head of the mill round a few degrees at a time. This process was demonstrated to me by the miller of Patmos.

I have said that these mills are going out of use, and it is true that one often meets with ruined towers. But active windmills showing no sign of decay, and with their sails spinning round merrily to the wind, I have seen at Santorin, Cos, Kea and Rhodes, and I have photos of an active group at Chios. There is one at Gallipoli, near Cape Hellas, which looks like a modern one, and I have seen windmills of the kind which appeared to be in working order between Lisbon and Cintra.

At Cos, when I was there in 1929, I saw seven windmills stretched out in a row on the sandy spit which runs out to the west of the town. One, it is true, was a ruin, but four were in full sail, while the other two had sails wrapped round their arms, and appeared to be in working order.

At Rhodes the windmills along the harbour mole are ruinous, but there is still one in the town in working order.

I remember my first sight of these eastern windmills. It was off Kea (or Zea), an island south of Attica. From the ship's deck I could see, a mile or two away, a fertile, rocky island. High up on the skyline was a row of ten or a dozen windmills ; most of them were ruined and without sails, but one was spinning round rapidly. I could see it had many arms, but whether ten or twelve I could not be sure. The slopes of the mountain were abundantly terraced, for the island is a fertile one, and about halfway up I could see a white town or village. Since then I have seen many of these windmills in islands that were once Greek. But elsewhere in the Mediterranean I believe they have gone out of use. I believe they were once common and, as I have said, they are still to be seen in active use near Lisbon. At Palma in Majorca there are two large groups of ruined towers which seemed to me like old windmills, but I could find no evidence of this, though I looked carefully for mill-stones. I believe there is a working mill of this kind in the interior of the island. At Tangier, on the hill at the back of the town, I found two ruined mill-towers, with their mill-stones lying before their doors. On the Asiatic coast of the Dardanelles I have seen similar towers.

There is an old picture, dated 1802, of a mill at Minorca. It has a rather tall cylindrical tower like an Aegean windmill, but its six arms carry sails like those we see in England. Nevertheless these arms are stayed with cords or wire radiating from an axial pole. I am therefore rather inclined to think that modern sails were put on an old mill during the English occupation.

In the Geographical Magazine for June 1935, p. 41, is a photograph of a mill at Iviza, with four lattice sails on which canvas is stretched as in some windmills in England. But the round tower is of stone, and the arms are supported by stays which start from an axial pole, just like those in the windmills of the Greek Islands.

The famous mills of Don Quixote at La Mancha have towers and tops like the ones I have been describing, but they all carry sails like those which we see at home. That they originally had sails like the mills near Lisbon or in the Aegean seems not improbable.

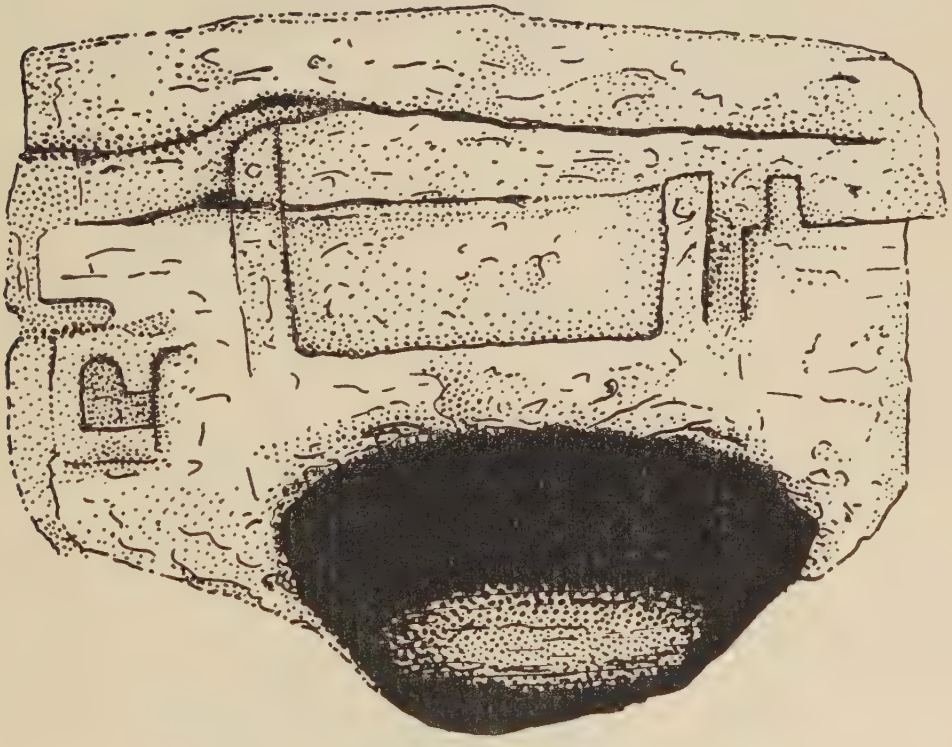
Lastly there is Daudet's windmill at Fontvieille where he wrote his tale, *Lettres de mon moulin*. A few years ago it was ruinous, but it has been restored, and now carries sails of modern type. What the old sails were like I do not know, but the tower is of the massive cylindrical pattern.

Many modern wind-pumps based on the principle I have been describing are to be seen in Rhodes. The type of sail, therefore, which is set like that of a ship, is not considered inefficient, but is still used in modern constructions.

LOUIS COBBETT.

DECORATED TOMB FAÇADES, CYPRUS (PLATES VI–VII)

The recent excavations at Vounous[1] on the north coast of Cyprus, sponsored by the British School of Archaeology at Athens, revealed

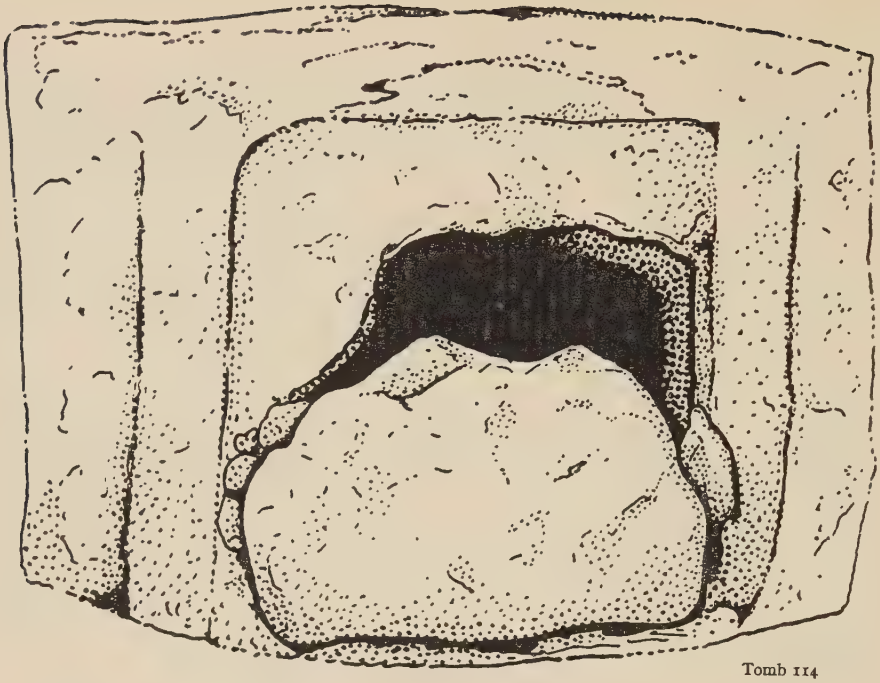


VOUNOUS, TOMB 117 ($\frac{1}{20}$)

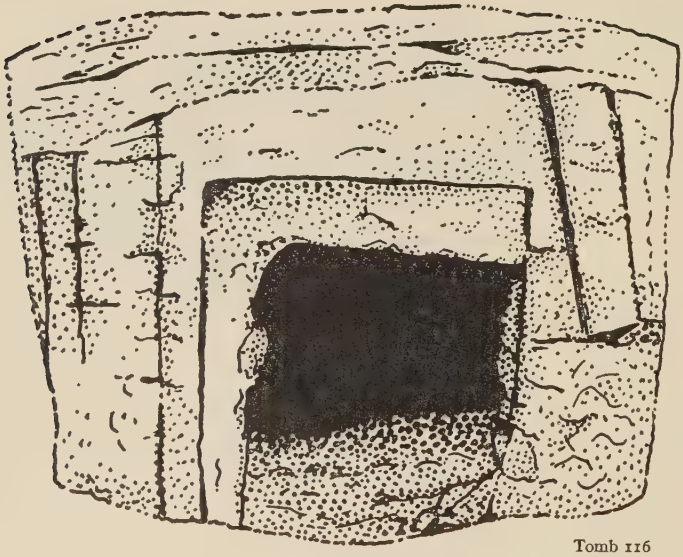
three tombs with carved façades; tombs 114, 116, and 117. The carving is carried out on the external face of the Chamber entrance, *i.e.* at the back of the Dromos or entrance passage. The drawings of the façades are reproduced here.

In these three cases the design appears to be architectural rather than decorative. Very little is known about Cypriot houses in the

[1] ANTIQUITY, September 1937, p. 356 and plate XI.



Tomb 114



Tomb 116

TOMBS AT VOUNOUS, CYPRUS ($\frac{1}{20}$)

Early Bronze Age, but Dr Gjerstad has demonstrated that the form tended to include approximately rectangular rooms[2] arranged in an L shape round an enclosed courtyard. In this house at Alambra the rooms are not inter-communicating, and Dr Gjerstad has assumed with great probability the use of flat roofs as in modern Levantine houses. The walls were built of mud-brick on stone foundations, as are today the walls of village houses. This constructional form would have necessitated the use of timber uprights and lintels for door gaps, and the writer would suggest that the resultant appearance has been reproduced in the Vounous façade carvings, with the addition of a bolt slot on the left of Tomb 117.

All three tombs belong to Early Cypriot I, sometime before 2600 B.C. Tomb 116 is probably to be attributed to E.C. Ia, and 117 was probably excavated at about the same time, although reused in E.C. II–III. Tomb 114 had been looted, but produced sherds attributable to E.C. Ic at the latest.

A very different aspect is found at the nearby site of Lapatsa on the lands of Karmi village. A few tombs were looted during 1936–37, and one bears an incised chevron pattern on the upper façade, above the entrance-stone. This motif is purely decorative, and is well known on the pottery of the Early Cypriot period. The finds from this group of tombs, as now in the Cyprus Museum, belong to E.C. Ia–b. There are no pieces typical of E.C. II–III, so it is safe to assume that this tomb is approximately contemporary with the three Vounous examples.

The cornice cut to accommodate the stone closing the chamber-entrance should not be included in the class under consideration. It is rather commoner, being found at Lapithos in tombs 61, 64, 66, 67 and 69, according to Gjerstad.[3] These tombs date from E.C. II to E.C. III. A similar feature has been recorded in relation to small cupboards cut in the Dromos wall for offerings.[4] This feature belongs distinctly to the realm of tomb architecture.[5]

It is worth noting in this context the editorial notes in ANTIQUITY, March 1931, p. 1–4.

The drawings have been prepared for publication by Messrs A. West and Partners, from the field-drawings made by Mr J. S. Last.

J. R. STEWART.

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[2] *Studies on Prehistoric Cyprus*, p. 20 ff.

[3] ibid, p. 70. [4] ibid, p. 71.

[5] Compare the similar feature in Sicily, Mallorca and the Dolmen de Mississipi. *Proceedings of the Prehistoric Society*, 1935, p. 112.

MEGALITHIC STONES, ASOTA (PLATE VIII)

The Stone Circle of Asota in the Mardan District of the N.W.F.P. is situated close to the east side of the cart-track to the large village of Shewa, and level with the village of Asota. This cart track takes off from the $17\frac{1}{2}$ milestone out of Mardan on the Mardan-Swabi road.

It is an almost unique monument in Northwest India, the only other example being the Megaliths of Burj Hama, illustrated in ANTIQUITY of June 1937. There is, however, not the least resemblance to connect the two ; the stones of Burj Hama are huge, shapeless and of assorted sizes, while those of Asota are tall and narrow, and, there is little doubt, were originally much of a size. The plan of Burj Hama is irregular, if not incomprehensible ; that of Asota an extremely regular circle.

Judging from the only segment in which every stone is standing, there must originally have been 32 stones. Of these, numbering the north stone 16, that one and a missing 32 are due north and south, and 8 and 24 due east and west. At least, taken by prismatic compass, the present position of stones 8 (leaning) and 24 (stump remaining) is a line roughly due east and west, and from 16 to a point at the centre of the circle due north and south. The circle has a diameter of 57 feet, measured from the inner faces of opposite stones at the point where they meet the ground. It is probable that originally all were of this height.

Fourteen of the stones are missing, including the whole of the southeast segment, 25 to 32. The distance between stones now standing is irregular, that between 4 and 5 being 2 feet 2 inches, and that between 9 and 10, 4 feet 4 inches. Some of the missing stones are built horizontally into a wall of a neighbouring grave-yard, and one, possibly no. 6, lies outside the circle to the west. This stone bears a number of lines on it at, roughly, intervals of three inches, some being a trifle more and others a bit less. On the far side of the stone there are a few similar lines even more irregularly spaced. They may have been executed at any time and with any form of tool. I examined them through a magnifying glass and they are roughly cut, but the stone is friable and it is quite impossible to say anything definite about them. As none of the other stones is cut or ornamented in any way, I fancy that these cuts are of relatively late date.

Just inside the grave-yard to the south there is a stump of stone of the same character as those forming the circle. It is covered with oil or ghi, and is probably of present-day religious significance, though

part of a Muslim cemetery. It is 98 feet from the centre of the circle, and on a bearing of 204 magnetic. I think that it is a transplanted stone.

The circle is associated with a local legend of the usual ' people turned into stone ' type. A raiding party is said to have surprised and ravished some women who were working in the fields. As the raiders made off, back over the neighbouring hills, the women called upon the Almighty to visit them with a judgment. Whether or not the Omniscient was aware that their lamentations were in excess of the genuine outrage to their virtuous feelings, he changed the protagonists impartially into stones ; sundry boulders on the hill-side being indicated as the raiders, and the circle as the doubly ill-fated ladies.

D. H. Gordon.

TOMBS OF THEBES

We have received the following communication from Mr. N. de G. Davies :—

' I have been assured that you are likely to be sympathetic enough to give publicity to the deplorable occurrence—or rather recurrence—that I have to report. I have become convinced, by the failure of several appeals to the authorities concerned, that the enlistment of public opinion is the only recourse left to those who deplore the circumstances and are horrified by the prospect they present.

' The *Service des Antiquités* of Egypt, under whose protection the four hundred or so painted or sculptures tombs of Thebes lie, has recently begun to send native craftsmen, without European supervision, to repair, and even to restore, the painted tombs, beginning with several of exceptional beauty and importance, though they were in no real need of attention.

' Apparently some native authority thought that visitors would appreciate white-washed sepulchres, with walls made smooth and regular by filling up all inequalities with mud or plaster. One knows how difficult such work would be for the most judicious man of taste, and it may be judged what ruin would be wrought by men of primitive or superficial education. The result has been that several of the finest monuments of Thebes, tombs of quite unique attractiveness, have been reduced in a few weeks to wastes of glaring Plaster of Paris. The general beauty they retained, in spite of more than three millennia of neglect and injury, is entirely lost, together with many details of historic value. There is not the least assurance that this vandalism will cease. I have the statement of the Director of the *Service* that this action was taken without orders from him, without his cognizance, and to his own dismay ; yet he has been unable to prevent a repetition of the scandal after the first case had been brought to his notice. The preservation of the tombs of Thebes, which are still in large measure uncopied and unedited, is the concern of the civilized world ; yet I have found it impossible as yet to get any learned body to take action or even to publish the facts '.

Reviews

ARCHAEOLOGY AND SOCIETY. *By* Grahame Clark. *pp.* xiv, 220, *with* 24 *plates. Methuen,* 1939. 7*s* 6*d.*

Dr Clark has already established an international reputation as a first-class excavator and field worker, a master of detailed research, a beautiful draughtsman and a successful organizer and editor. His new book reveals him also as a popular writer capable of expounding Prehistory to wider circles not only with erudition and lucidity, but also with a philosophical depth and a breadth of vision quite exceptional among archaeologists. His aim, set out with unusual modesty in the blurb, is ' to describe for the general reader how archaeologists go about their work '. Thanks to a lively and graceful style and a wealth of admirably chosen illustrations, the book succeeds brilliantly in explaining to the man in the street the aims of the prehistorian, the principles by which he hopes to attain them and a few of the more dramatic results achieved. It should not only answer the questions of interested amateurs, but should excite the curiosity of those outside archaeology altogether. So many facts and original ideas are included, without a compression that would make reading difficult, that a summary of the contents inevitably fails to do justice to the book's true riches.

Chapter I sketches briefly but acutely the history of Prehistory in its social context. The story of Buckland and the first ceremonial burial of Palaeolithic Age ever uncovered, but not discovered, is retold to emphasize what blinkers were lifted from scientists' eyes by the *Origin of Species.* The next chapter answers the inevitable question, bane of every excavator, ' How do you know where to dig ' ? Casual discoveries, air-photography, the use of maps, place-names and literary clues and the romantic tale of Dragons' Bones are profitably discussed. Under the heading ' Preservation ' the author describes, not the activities of H.M.O.W. and similar agencies of conservation, but the effect of climatic and geological conditions on monuments and relics. Illustrations of the survival of organic materials, aptly drawn, not only from familiar regions like Orkney and Egypt, but also from Greenland, the Altai and Arizona, bring home vividly to the reader how much is normally missing in the archaeological record and how the prehistorian must fill the gap by cautious use of scientific imagination. The account of ' Excavation ' develops this theme in showing how data for the legitimate application of imagination can be gathered by meticulous excavation. General readers and students alike will appreciate the inclusion

of Stonehenge as an example. A fellow prehistorian may be allowed to remark that Clark rather over-estimates the advantages enjoyed by Romanists and Orientalists in excavation, but omits their most decisive help to reconstruction—the existence of figured monuments like Trajan's Column and the temple models from Uruk-Warka.

The foregoing chapters appeal primarily to the laymen in clothing with life the dry bones of archaeological processes. But they are of real service to specialists and students in introducing them to unfamiliar discoveries like the mesolithic sledge-runners from Finland, the Pazurik tombs, and the Basket Makers, and in collecting and illustrating materials and observations, often referred to but actually accessible in only a few large libraries, like the Ladby Ship, the Fayum cereals and silos, Dutch palisaded barrows, a Skara Brae house. The succeeding chapters, on the contrary, while equally illuminating to the general reader, provide for the student a text-book of principles, stated with a precision conspicuously lacking in more pretentious manuals. The chapter on chronology gives precisely what a university student needs to know. It explains under relative chronology, typology (illustrating both evolutionary and degenerative series), stratigraphy, geological, palaeontological and botanical methods, distribution maps (emphasizing the contrasted conclusions to be drawn from comparing distributions of cultures on the one hand, of individual types on the other) and synchronism (the correlation of Western and Danubian sequences agrees nicely with that given in the new edition of my *Dawn of European Civilization*, just published). For determining absolute age geochronology (both Milankovič' radiation curve and de Geer's varves), dendrochronology and historical connexions are considered. (It is a pity that Neugebauer's debunking of ' the earliest certain date in human history ' was not mentioned in explaining the Sothic cycle—an account of it is given in the latest edition of *Man makes Himself*.

Still of course a student can find all this information somehow if he hunt through sufficient text-books and journals. The principles of interpretation, enunciated and concretely illustrated in chapter VI, can be found nowhere else, unless perhaps in Russian, and rather distorted by undue reverence for the good Morgan. In a masterly section of 38 pages the author gives hints on how scientific archaeology may reconstruct the economic bases of prehistoric societies, relate them to material and spiritual equipment, estimate population densities (a crucial subject hitherto ignored), and thus lay foundations for legitimate speculations on social behaviour, aptly exemplified by a quite novel account of head-hunting and cannibalism in prehistoric Europe. The last chapter, bearing the same title as the book, is in fact mainly devoted to the abuse of archaeology by nationalist, communist, racialist and imperialist dogmatism. In my opinion

the disabilities imposed by Nazism have been unduly minimized, those due to Soviet communism exaggerated by reliance on tainted sources; and the plight of archaeology in Great Britain is not due to the divorce of the people from the land by the industrial revolution, but to government by an oligarchy imbued with the ideology of feudal barons and oriental satraps. But the real point is well stated in the end. ' To see big things whole they must be seen from a distance, and that is precisely what archaeology enables one to do. The history of mankind, when any phase of it is studied at close quarters, appears to be a maze of apparent inconsequences : it is only when viewed from the perspective of prehistory that the broad sweeps become easily apparent and the history of men gives place to the history of man '.

The book is illustrated with 24 half-tones and 31 line drawings, diagrams and maps. These depict precisely the subjects an experienced teacher wants to show his students but often finds it hard to lay his hands on. Now the students will be able to possess the rare illustrations themselves and study them in the blacked-out nights. The publishers deserve our gratitude for producing this work so cheaply and so well-illustrated. They will doubtless be rewarded by large sales ; for this is quite the sort of book that anyone will like to buy for reading in long dark evenings of isolation and alarm. V. GORDON CHILDE.

ANNUAL REPORTS OF THE ARCHAEOLOGICAL DEPARTMENT OF H.E.H. THE NIZAM'S DOMINIONS : 1934–5, *edited by* SYED YUSUF, Assistant Director, *pp.* IX, 92, 8 *plates* ; 1935–6, *edited by* G. YAZDANI, Director, *pp.* IX, 79, 15 *plates*. *Calcutta, Baptist Mission Press*, 1938.

In the first of these reports the chief items of interest are Kalyani, Warangal and some inscriptions.

Kalyani in 1100–1200 was the capital of the Hindu empire of the Chalukyas of the West Deccan. Its earlier history is not known ; the inscription cited on p. 17 belongs to the twelfth, not the sixth century. The Muslims, appreciating its strategic value on the Kanarese-Telugu border zone, elaborated its defences, which still stand intact. Fifteen inscriptions, dating from 1400–1700, prove their interest in the place. The only relics found of the Hindu period were 3 inscriptions (no details given) and some unusually attractive figure sculptures (pl. 2). The dates 1635 and 1657 on p. 18 are apparently misprints for 1657 and 1687.

Warangal was the capital of the Hindu Kakatiyas, rulers of the East Deccan, Telingana. Excavations in the fort, in the area between the four well-known *toranas* (gateways) of the temple precincts yielded some fine sculpture, but the ground plan of the temple to which they belong is ' incomplete '.

The inscriptions, all from East Deccan, are edited by Dr P. Sreenivasachar, whose notes throw an interesting light on the struggle between the Deccani Sultans, and the Hindus of Orissa, Telingana and Vijayanagar for the control of the Kistna and Godavari Deltas.

The Report for 1935–6 contains notes on the fort of Mudgal, in the blood-stained Raichur Doab between the Sultanates and Vijayanagar ; on two other forts, in the Ajanta Range ; on a newly discovered cave with Hindu bas-reliefs at Bhokardon near the battlefield of Assaye ; on three groups of Chalukyan temples, Gabbur, Katchapur and Kondapaka ; and on a Kakatiya inscription at Raichur of 1294, the year of the first Muslim raid into the Deccan.

Excavations at Maski, the site of an Asokan inscription of 3rd cent. B.C., produced a tantalizing series of celts, chert flakes, potsherds, figurines, terracotta discs, beads and chank bangles (pl. 3–6), but no stratigraphic evidence of culture sequence. An exhaustive study of such finds all over India is first necessary if ever these objects are to be used for dating. Palaeolithic types are reported, but none are figured. A curious adaptation of the ' triskeles ' motive is shown on pl. 7 from a temple near by, of three (not ' two ') geese with their necks interwined.

In spite of the devastations of road contractors, South India perhaps still holds more ' megalithic ' monuments than the whole of the rest of the world. For several decades this subject was shelved ; interest was revived by the enterprise of Dr Hunt, the late Capt. Munn and Mr Yazdani. The vast dolmen fields of Rajankalur and Haggeritgi, described by Meadows Taylor in the sixties of last century, have almost entirely disappeared, but the Benkal group (pl. 8) which survives is truly ' of exciting interest '. The Department is busy listing sites and providing for their protection. In the absence of a map the lists are not easy to follow. The dating of this ' megalithic ' culture is the subject of wild speculation ; ' 3000–1000 B.C.' convinces no one, and the attempt to date it by the Rig-Veda (p. 31) is pathetic. Fergusson thought the Shahpur cemetery could not be earlier than 14th cent. Mr Codrington, on ampler evidence, suggests from about 3rd cent. B.C. to well on in the Christian era. (*Man*, 1930, no. 139). In any case a careful study of all available evidence is a condition precedent to tackling this problem. The ' pottery marks ' of this culture, by the way, were published by Bruce Foote in 1901, in his Madras Museum Catalogue.

Monographs are in preparation for Bidar and Gulbarga, and a much-needed list of ' unpublished ' inscriptions, which it is to be hoped will include full references to those that have been published.

The reports are well printed, the plates excellent. Mr Yazdani is to be congratulated on the progress made. F. J. RICHARDS.

ARCHÄOLOGISCHE SIEDLUNGSKUNDE DES TRIERER LANDES.

By Joseph Steinhausen. *pp.* xvi, 614, *with* 46 *plates, one coloured map and* 25 *maps in text. Trier : Paulinus-Druckerei,* 1936. 9 *marks.*

The justification of this book is the importance of the area with which it deals. While showing a rich and interesting agricultural life of its own, it acts as a transmission zone of eastern and western borne cultures. It is, on the one hand, among the earliest recipients of northern Christianity ; on the other, the western outpost of Germanic speech, facts which reflect its cultural behaviour throughout the ages.

Dr Steinhausen's work describes this cultural behaviour from the earliest times to the end of the Merovingian period. It is mainly compilation, excellent and planned on a scale so large that one's principal regret is for a defect in completeness ; the author seems to have fallen between the stools of commenting merely upon that portion of the Rhineland archaeological map already published (Trier-Mettendorf) and of offering a complete survey of the Trier region. When the geological record is thus ' sampled ', the reader feels its inadequacy on trying to relate distribution-maps (of which Steinhausen publishes many) to the general structure.

On the whole, the work has all the merits and some of the defects of a compilation. Steinhausen's net is so wide that it is not easy to discover what his real *expertise* is ; nevertheless it may be suspected that he is not a prehistorian. It is true that Roman remains have rather overshadowed prehistoric finds in this region, so that few settlement-sites are known and even recorded burials are not very common until the Iron Age. Yet the author's insistence on ' prudence in everything ' and his reluctance to draw conclusions from such finds as there are seem to reveal a lack of grip upon the comparative material. Like the diplomatist, the prehistorian needs the ' tacte des choses possibles '. We discern, however, the clash of eastern and western cultures in a neolithic which shows Camp de Chassey affinities in its tools, and Peterborough pottery from the one camp as yet studied (Dietzenley) ; urnfields and Hallstatt tumuli illustrate movements from the east at later dates ; and the author subscribes with cautious reluctance to the Hawkes-Dunning thesis of a German infiltration represented by cremation interments.

With the Roman period, the remains become numerous enough to permit conclusions on their own merits, and Steinhausen's work gains in strength. The origin of Trier itself presents a difficulty and the author has only had time to insert in a footnote the new views of Koethe ; its great industrial period dates from *c.* 70–250. It is important in itself for its great ceramic manufactures, and serves besides as a distributing centre by way of the Moselle river and the Roman roads for the consumption needs of the military occupation.

The countryside well illustrates the sudden rise of prosperity which Dunning and Hawkes observed in Belgica as a whole. Settlements now appear on the originally wooded Keuper and the Devonian of Hunsruck and Eifel. It is the epoch of the Secundinii at Igel and the Neumagen tombstones (which are no longer regarded as having been carried from Trier). Rostovtzeff's supposition of foreign capitalists responsible for this development is unnecessary and inconsistent with the epigraphic record. Foreigners are rare among the Treveri; they are the Scots of Roman Gaul.

This prosperity comes to a violent end, far more catastrophic than one had imagined, with the barbarian invasions of the third century. The restoration of Diocletian and Constantine was a titanic work here, indeed much of the ground lost was never recovered. Nevertheless in the fertile Bitburg neighbourhood (where Steinhausen sees an imperial domain in the *Landmauern*) reconstruction was successful, and there is even occupation *de novo*. With the establishment of the system of defence in depth, Trier itself gains a new importance. It is now a key point in the road system upon which this defence was based and becomes furthermore the seat of the praetorian praefect and frequently of the emperor.

The Merovingian period poses the problem of continuity, and though this is a far better documented region than the world of Gildas, Nennius, and the Chronicle, the problem is no easier. In Trier itself the bishopric survived, and it is believed that the Franks occupied an area distinct from that of the Gallo-Romans within the wall (an interesting parallel to what Wheeler has supposed for London); in the country Frankish remains are only very occasionally found in Roman villas, and continuity was certainly merely the affair of the lowest classes, as is well shown by the vocabulary transmitted. Glass-working and pottery preserve Roman technical terms and even Roman technique (Steinhausen might perhaps have made more of this); but smithing, weaving and even agriculture are linguistically German henceforward. Moreover, the picture of settlement shows a return to prehistoric conditions, and parallels neatly enough Fox's Cambridgeshire maps. The extent of continuity is well illustrated by the *-acum* place names. Not a few are actually preserved among the *-ingens* and *-heims* of the Triassic lands, but the suffix never becomes, as in western Gaul, a live unit in the formation of new estate names.

There are many more interesting points which are suggested by this very full study. It is not perhaps a book for the general reader; its value, however, to students of other regions as a standard of comparison is immense. And though one might press for more plans and some pictures of objects instead of photographs of unimportant villages (there is not even a proper town-plan of

Trier), the references are all there—in thousands. Dr Steinhausen may be congratulated on a fine monument of industry, and his publishers on the very moderate price at which they have issued it. C. E. STEVENS.

1. MOUNDS IN THE PLAIN OF ANTIOCH : an archaeological survey. *By* ROBERT J. BRAIDWOOD. *University of Chicago*, Oriental Institute Publications, volume XLVIII.
2. ANTIOCH ON THE ORONTES II : The Excavations 1933–1936. *Princeton University Press and Oxford University Press*, 1938. £5 15*s*.

1. In many parts of the East the surface is blistered with ancient mounds. In the low-lying ground around Antioch the author of this book has plotted 178 mounds in an area of 535 square kilometres. They are of various sizes : a large one measures 400 m. long and rises perhaps 30 m. high ; a small one is only 25 m. in diameter. Many are the sites of old towns or villages, some of isolated buildings, others may be mere dumps. The book is an inventory of the pot-sherds collected from these mounds in a reconnaissance which took three weeks. Care was taken to include samples of every type, plain as well as decorated, and the collections were studied mainly in the light of a series of stratigraphic records which had been obtained by the excavators of one of the mounds in question, Tell al Judaidah, where fourteen cultural periods had been distinguished. To complete the historical framework, two recent groups, one or two sub-groups of foreign wares, and a much too long Medieval-Arab group, stretching from A.D. 600 to 1800 had to be added. The result is presented as an archaeological survey of the area.

What is the value of such work ? The author, Mr Braidwood, is under no illusions as to the limited validity of any conclusions which can be drawn from his data. The data prove that the plain was very heavily occupied during the Hellenistic-Roman periods and the Medieval-Arab period : the pre-Hellenistic periods for which material is most abundant are—Judaidah XIII (the beginning of the appearance of metal), XI (3100–2600), X (2600–2400), VII (1800–1600), V (1200–1000), IV (1000–500). But no one would be justified in concluding that all the intermediate periods were times of relative poverty, the Late Bronze period (1600–1200), for example, or the Early Christian periods (A.D. 350–600). Arguments *ex silentio* are always dangerous, but peculiarly so with material of this type. But the work was none the less worth doing, and it has been very well executed. The 27 maps and 9 text figures are beautifully reproduced and the letterpress is brief and sensible. The writer points out that there are several mounds in areas now swampy but none in what is now a lake, and it is suggested that the water table has risen, what is now a swamp was formerly well drained, and what is now a lake was once in all probability a swamp.

2. The second book deals with excavations at Antioch itself. A joint American-French expedition has been working here since 1932 : in Antioch and the neighbourhood they have dug on 40 sites, and in Daphne and its surroundings on another 24. Work in the port of Seleucia is also contemplated. The present volume is the second which has been published, but the amount of information which has been released up to date is still rather small. This may be disappointing, but it is probably wise. The book before us contains detailed accounts of a Roman theatre at Daphne by Donald N. Wilber ; of the water system leading from Daphne to Antioch, also by Wilber ; of an important early church by Jean Lassus ; of a large villa at Daphne, also by Lassus ; the Greek and Latin inscriptions by Glanville Downie ; the Arabic inscriptions by N. A. Faris. Besides these, which may be regarded as more or less final publications, there are illustrated catalogues of the sculptures and figured mosaics found up to date, without, however, any critical discussion. We are glad to learn from the foreword by W. A. Campbell, the Field Director, that the island, the main street and the cemeteries have been located, and we look forward to reading about them in some future volume.

The theatre at Daphne was built apparently towards the end of the first century A.D. Arrangements existed to flood the orchestra for water displays ; a few fragments of fine architectural detail give promise of the quality of workmanship which may be expected elsewhere in the city ; very little of the building was left, and that little found under considerable difficulties, trees which had to be spared and so forth. It has now been wisely buried again.

The church was found on the right bank of the Orontes outside the limits of the city. There were no trees to obstruct work and the whole monument was cleared. Unfortunately it had been stripped everywhere to floor level or lower. The building was cruciform, a central square measuring 16 m. by 16, with four equal arms, 11 m. across and 25 m. long, pointing to the cardinal points. In the central part there were traces of a tribune in the middle and two graves in the corners on the north side. In the four arms the mosaic floors were fairly well preserved near the centre of the monument but broken towards the extremities, in part by later burials. The patterns of the mosaics are all geometrical in character : those in the eastern arm are very like some of those found by Harvey in the Constantinian nave at Bethlehem. Inscriptions were found in the north, south and west arms : on these, the arm in question is called in each case an *exedra*, and the floor in the north exedra is dated A.D. 387—a date close to the date of Bethlehem. In the east arm no inscription was found and we do not know whether the term *exedra* was applied to this arm also.

The plan is extremely interesting and M. Lassus is almost certainly right in regarding it as the martyrium in which the remains of St. Babylas ultimately

found rest. A learned note on the translation of the body of St. Babylas, mentioned by Chrysostom, Sozomen and others, is contributed by Mr Downie. The dates fit, and the site is appropriate ; one of the graves in the centre may be identified therefore as that of St. Babylas, the other as that of Bishop Meletius, the builder of the church.

The tribune in the middle is reconstructed by M. Lassus on the analogy of a tribune at Rusafa, with an apsidal synthronus at the west and an altar to the east, for use, one would suppose, on the festival of the saint. This is quite possible, though the material evidence is slight, but I hesitate to follow M. Lassus further in regarding the eastern arm of the church as an arm in all respects like the others—the three *exedrae*, as we may call them. It seems to me more likely that there was an altar and sanctuary in the eastern arm, whether there was also one in the middle or not. There is, admittedly, no trace of its existence but there is equally nothing to negative its existence, and the west–east axis of the whole building in the form which it ultimately assumed, when various annexes were added—a porch at the west end and other buildings, among them a baptistery, on either side of the east arm—is so strongly accented, as the writer admits (p. 22), that it would surely be more reasonable to assume that this arm ended, after the normal fashion, in an internal apse.

Whatever doubts there may be on these points, there can be no doubt about the importance of the find and the care with which it has been studied.

The second monument which M. Lassus describes with equal minuteness, is the great villa at Yakto in the Daphne area, where the mosaic with the topographical border was found (see *Antioch*, I). The original building goes back to the third century but was rebuilt and enlarged just after the middle of the fifth century, and little more than the plan of a section of the first house and one very fine mosaic, with a representation of birds, has survived. The second plan is a rambling affair, consisting of four more or less separate buildings loosely connected together, the country house, according to the editor, of a wealthy oriental, planned to suit oriental conventions. There is, of course, the inevitable bath, but there are also two interesting cruciform rooms roofed, in part at least, with cupolas, and a third with two, if not three, apses. The clearance of this building, like the theatre, was obstructed by trees which could not be destroyed, and where there were no impediments, the walls were found to have suffered greatly. Nothing was standing more than a metre high or thereabouts and in places the line had disappeared completely and the plan was lost. Gold and coloured glass tesserae were found in the débris in some of the rooms which had probably been roofed with cupolas, and among the fragments was one which came from a figure-subject ; it had part of a face. Again, however, the chief finds are the floor mosaics and the pavements in

opus sectile which were laid over the mosaics in a final transmogrification of the villa at the beginning of the sixth century. Only two more floors with figure-subjects are published in this volume : one represents a goddess on horseback, riding lance in hand to attack a lion, while a mounted attendant holds over her head a yellow parasol with a red fringe. The other, which is less gauche, represents Thalassa surrounded by boys fishing and cupids riding dolphins in the waves. Most of the floors are purely geometrical and about these M. Lassus makes two suggestive observations. In the first place, he suggests that there often seems to be a definite correspondence between the design of the floor and the type of roof—a circular pattern, for instance, may indicate a cupola. Secondly, he draws attention, both here and in the chapter on the church, to the way the colours are handled in regular gradations, either repeated or counter-changed, on a fairly rigid scheme—white, light blue, dark blue, black, white, rose, red, black, coming over and over again in the same order.

The volume contains eighty large collotype plates which are beautifully printed—that is why it is so expensive. Twenty-two of the plates are devoted to sculptural remains, the rest to the figure-mosaics which have been found in the numerous sites that have been dug. J. W. Crowfoot.

THE ROUTE OF THE EXODUS. *By* A. Lucas. *Edward Arnold. pp.* 99 *and map on end paper.* 3*s* 6*d.*

A new recruit is welcomed to the ranks of those who have attempted to throw light on the mystery of the Israelitish wanderings, and this is Mr Lucas, who has served in Egypt for the same period as Moses spent in Sinai. The author has taken a considerable amount of trouble over this small book, and has apparently studied at length every conceivable volume and document on the subject. He devotes the greater part of the first few chapters to locating the area in which the Israelites were dwelling previous to their flight, and, after weighing the evidence, holds the view that Kantir near the village of Fakus is the most likely spot.

Among other documents he examines is the translation of a Nineteenth Dynasty papyrus, which is the monthly report of a minor official stationed in the Wadi Tumilat. In this the official states ' we have finished causing the Bedawi tribes of Edom to pass the fortress of Merenptah towards the pools of Pithom . . . in order to feed themselves and their flocks '. This is particularly interesting because it proves how little things have changed in 3200 years. Today the Beduin of Edom still come in to Sinai and the Tumilat region west of Ismailieh to feed themselves and their flocks, and worried officials still endeavour to check their movements by compelling them to call at stipulated frontier-posts on the way. The Beduin of the Nineteenth Dynasty apparently

objected as strongly to government interference as he does in the twentieth century.

The route of the Israelites when they left Egypt was, Mr Lucas maintains, the centre track across Sinai known as the Darb el Haj or the Pilgrim's Way, and in selecting this he examines the evidence in favour of the alternatives, *i.e.*, the accepted route to the south or the northern track along the way of the Philistines direct towards Palestine. He finds nothing in favour of the reviewer's particular theory that they passed along the strip of sand that divides the north of the Bardawil Lake from the Mediterranean Sea. This, he says, is impossible as it is waterless the whole way, lacking in pasturage and liable to inundations. Mr Lucas cannot have travelled by this route himself to spy out the land otherwise he would remember the halfway halt now called Gals, which in Roman days was known as Mt. Casius and was of some importance. Here two waterholes exist and there is a large area of grazing up to the standard of that to be found in any other part of Sinai. Other grazing areas exist at Gatafa and Likleifa, and the track is not subject to general inundations, but only to cuts made by the sea at the narrowest spots. These cuts do not prevent the passage of travelling Beduin today and it is only in the wildest weather that they are flowing.

It is disappointing to find that Mr Lucas has no particular theory to explain the loss of the Egyptian host, and he side-tracks the subject by accepting tentatively the view held by Scarth and others that a high wind displaced the waters in one of the bitter lakes in the vicinity of the Isthmus of Suez, driving them back sufficiently to provide a dry crossing for the Israelites and returning to swallow up the Egyptians. Having shot snipe and duck over most of these big brackish lakes of Egypt during twenty years the reviewer has had some experience of this heaping up of the water owing to the action of violent gales. There is undoubtedly a change of levels sufficient to cover the promising snipe marsh of yesterday with four inches of water today. It must be understood, however, that this pushing back of the water, though it is sufficient to interfere with the feeding habits of a small bird like a snipe, is hardly of such a nature as to account for the loss of a whole army of husky Egyptian soldiers.

Mr Lucas takes the host by the central route across Sinai direct to Akaba, which he locates as the *Yam Suph* (sea of Reeds) though he admits there is little sea-weed there. Having traced them to Akaba he is faced by the quail problem, because it is the alighting of these birds on the Mediterranean coast that causes many people to accept the northern route in preference to the south. The author, however, maintains that Akaba is on the line of flight of the migrating quails, and holds the view that a violent wind must have forced them down for the benefit of the Israelites. This may or may not have happened, but the fact remains that the quail today do land on the Mediterranean coast in hundreds

of thousands every year, and that only a few tired or sick birds are seen south of this area. Mr Lucas states that as the area is uninhabited they may come down now and escape notice, and with regard to this he should make the acquaintance of those keen financiers, the Akabawi and the local Howeitat. If there is any profit lurking in their neighbourhood it would be a miracle if it escaped their notice.

A considerable portion of the book is devoted to the question of manna, and Mr Lucas accepts the theory that it is the exudation from the local tamarisk or *tarfa*. As an analytical chemist he has examined present day manna and finds that it is mostly sugar, that it cannot be ground in a hand-mill, but it can be seethed in a pot.

The Holy Mount he identifies as Gebel Baghir in the Wadi Ithm above Akaba, and if one accepts this area as the site of the wanderings this mountain will pass the test.

The book is a well-reasoned argument based on close study of documentary evidence and is well worth consideration. The fact remains, however, that the wanderings—if they were actually wanderings—must still remain a mystery, as no one yet has been able to accept that view and explain how the Israelites found fodder not only for their sheep and goats, but also for oxen, and, what is also to the point, routes on which ox-waggons would travel. C. S. Jarvis.

CAHERCOMMAUN: a Stone Fort in County Clare. *By* H. O'Neill Hencken. (Extra volume of the Royal Society of Antiquaries of Ireland). *Dublin: John Falconer*, 1938. *pp.* 82, *with* 11 *plates*. 5*s*.

This is the record, and an admirable one, of the first thorough and scientific excavation of an Irish caher or stone fort ever carried out. So long ago as 1825 the remarkable Staigue Fort in Kerry was cleared, and the structure itself described in detail and with fair accuracy, but the interior does not seem to have been excavated nor was any conclusion as to the date of the fort arrived at. Between 1870 and 1875 Grianan Ailigh, the similar structure which crowns a hilltop in Donegal not far from Derry city, was examined (and partially rebuilt) but neither of these operations can be described as complete or scientific investigations, and the dating of the structures remained uncertain. It is obvious that the excavation of sites so extensive as the larger forts called for large resources and these, till the coming of the Harvard Archaeological Expedition to Ireland, were not available in that country. The success of the operations of the Expedition and the attention which it drew to the archaeological wealth of Ireland was, in great measure, responsible for the granting of State aid to archaeological investigation there, and for the inauguration of an extensive programme of excavation which has been in progress since 1934, the year of the excavation of Cahercommaun.

The fort itself is in the Burren of Clare, an extensive limestone plateau occupying the northern part of the county and covered with structures of the kind, large and small, to the number of three or more to the square mile. From the tabular exposed outcrops of well-stratified rock an ample supply of stone is readily obtainable, and of a nature admirably suited to the construction of stable, though unmortared, walls of stone. This was doubtless the prime factor in the development of the local type of building. While the majority of the Burren forts were only steadings Cahercommaun was a fortress also, but it does not seem to have been occupied for more than a few generations. It has three rings, the outer walls abutting on the edge of the ravine and enclosing areas, radially divided, which seem to have been used for cattle ; the innermost wall is very massive and roughly circular in plan. There are two souterrains (one with a foundation deposit) within the fort and the traces of a dozen irregular and poorly constructed buildings, besides numerous hearths which, with the large quantity of animal bones found, mainly of oxen, afford a picture of a life of rude plenty. Bronze finds were rare but iron and bone plentiful. The fact that it is datable to the ninth century and is thus contemporary with some of the crannógs—such as Lagore, also excavated by the Expedition—tempts to the conclusion that similar structures—the great forts of the Aran Islands, Staigue, and the Grianan, for example—must also belong to the period. The discoveries, however, of Late Bronze earthworks in Limerick (Cush), a crannóg of the same age in Clare (Knocknalappa), and a fort datable to about 350 B.C. near Turoe in Galway, call for caution in generalizations as to fort datings. The ring-fort, whether of earth or stone, probably has a quite respectable heredity as well as, like the crannóg, a long history of later use.

The volume is amply and clearly illustrated by the photographs and plans, and sections to large scales which accompany the description and analysis of the excavation, which are both lucid and are from the able pen of Dr Hencken himself. He and the Society are to be congratulated upon the excellence of the special volume. Dr H. L. Movius contributes a short section on the human remains, while Mr Stelfox and Miss G. Roche deal with the animal bones.

H. G. LEASK.

PREHISTORIC POTTERY IN CHINA. *By* G. D. WU. *Kegan Paul & Co.*, on behalf of the Courtauld Institute of Art, University of London, 1938. *pp.* 180, 67 *plates*, 2 *maps*, *and* 5 *tables.* 21*s.*

The author has had wide experience of his subject, in both field and study. Hence his book provides a welcome addition to our knowledge of early Chinese ceramics, and the views which it expresses will receive thoughtful consideration from archaeologists everywhere.

Mr Wu (p. 171) states it as his purpose ' to make a systematic study of prehistoric pottery in China in order to formulate a chronological sequence of prehistoric sites '. To this end he groups the objects of his investigation under three successive heads, *viz.*, red, black, and grey wares. Of these, the first two are entirely prehistoric; while the last, according to Mr Wu, belongs especially, though not exclusively, to the dawn of China's history—the period of the Shang Dynasty (roughly the latter half of the second millennium B.C.)

The author has taken great pains in the organization of his material, and his presentation is detailed, yet clear. The greater part of his text consists of a minute and accurate description of the appearance, characteristics, and probable methods of manufacture of the three major types of early Chinese pottery named above. Mr Wu's close observation and acute analysis of these deserve high commendation. There is also a brief but well selected bibliography (consisting chiefly of Chinese titles), while a carefully prepared index greatly facilitates reference. The two maps are helpful and truly illustrative, and the excellent plates, grouped at the end of the book, form an admirable complement to the text.

Mr Wu has performed the first part of his stated purpose—a systematic study of early Chinese pottery—exceedingly well. With the second part—the establishment of a chronological sequence of prehistoric sites—he has not, in my opinion, been equally successful. To base such an attempt, indeed, on a study of a single class of material remains, to the avowed exclusion (p. 3 ff.) of all others, is an extremely hazardous proceeding, unlikely if not impossible of accomplishment.

Perusal of Mr Wu's book will probably leave most of its readers with the impression that his two earlier (prehistoric) periods were characterized, respectively, by the red and the black pottery groups alone. That such was however far from the case, my own observations in the field have led me to conclude. My experience, in direct contradiction to Mr Wu's statement (*cf.* p. 158), has been that it is the grey pottery (Mr Wu's class 3) that occurs in greatest abundance on all ancient Chinese sites, without exception, until shortly after the beginning of the Christian era. On the oldest of these it appears alone; while later it is mingled, in varying but always greatly predominant proportion, with the other types.

Hence the rather sophisticated ' red ' pottery, made (in part at least) on the ' turn-table ' or *tournette*, can hardly have been the earliest known in China. Mr Wu, incidentally, decides (p. 22), on what seem insufficient grounds, to drop the old name of Yang Shao (from the type-site), bestowed on it by its discoverer, Dr J. G. Andersson. To replace established nomenclatures,

however, save for reasons of the utmost cogency, is certain to cause confusion, and should be avoided wherever possible.

In reality the oldest ware yet found in China appears, from the evidence afforded by actual excavation, to have been a coarse, thick variety, entirely shaped by hand (most often by the ' coiling ' process), and pretty surely ancestral to the author's grey pottery. It belonged in a broad sense, most archaeologists seem agreed, to the same ceramic family that existed in so many other parts of eastern Asia during Neolithic times. It was invariably ornamented, if at all, by modifying its surface in various ways with incised or impressed markings or by luting on strips or lumps of moist clay before firing.

This primitive-looking grey ware has an exceedingly wide distribution throughout northern China, where it occurs, moreover, at all depths. The sites on which it appears alone, to the exclusion of other types of pottery, often lie off the main thoroughfares of travel, up lateral valleys or on the higher and therefore older river-terraces. Further, in many regions it is the ware found associated with interments—a fact in itself indicative of considerable antiquity, on account of the workings of religious conservatism.

This grey pottery, moreover, so far from having been absent from Mongolia until the historical period (*cf.* p. 156), seems, to judge from the observations of non-Chinese investigators, to go back to an ancient sedentary planting population with a culture not dissimilar to that of the Neolithic northern Chinese themselves. Everything points to its having far antedated the historical period, although, just as in China proper, it doubtless survived into it.

Mr Wu's ' red ' type, on the other hand, is never, in my experience, found alone, but always in conjunction (though in relatively far smaller amount) with the coarse grey pottery just described. Its distribution, however, is far more restricted than that of the latter, and seems to have some sort of connexion with the main routes of migration and travel ; for it is invariably on or near these that it occurs. It seems however to have had associated with it no distinct culture-traits of its own, save its decoration by burnishing and in some cases by the application of painted patterns ; and by the use, in its manufacture, of the *tournette* or ' slow-wheel '.

Mr Wu dismisses with a few words (p. 15 ff.) the opinion of many competent Occidental archaeologists that this ' red ' ware—sometimes called the ' Chinese Painted Pottery '—bears a genetic relationship to similar wares found at the opposite end of the famous ' corridor of the steppes ', in western Asia and eastern Europe. The point would seem to have called for more detailed consideration on Mr Wu's part.

The author's discussion of the wares included in his second prehistoric period—that of the black pottery—is very good ; though here too he should

have made it clear that this type never occurs alone but always mingled with the old coarse grey variety. He might also have told us more than he does (*e.g.*, on p. 11, quoting Dr Li Chi) in regard to the associated finds—for example, town walls of *terre pisé*, the true potter's wheel, and hitherto unknown domestic animals; since most of these culture-traits are already long known in the ancient Near East but new in China.

There appears, incidentally, a contradiction in the text here. Mr Wu says (p. 135) that while the wheel was used in the black pottery period (a conclusion to which I have long adhered; *cf.* my paper, 'The Neolithic Age in Northern China', ANTIQUITY, 1933, VII, 400), it was later replaced by other methods of manufacture. Yet in the immediately following paragraph (same page) he states that the superiority of the wheel was so overwhelming that when it appeared it soon drove out the older techniques of pottery-making. The truth seems to be that much of the old Neolithic culture survived, among the Chinese peasantry at least, until after the commencement of the Christian era; and that both more and less advanced techniques of potting thus persisted side by side—as indeed they still do, at the present day.

In speaking of the potter's wheel in China, to state any definite conclusions as to its absence in the northwestern Chinese province of Kansu, as Mr Wu does (p. 135 again), seems unsafe in view of our extremely limited knowledge of the archaeology of that region.

Mr Wu well describes (p. 41 ff.) the very fine Shang Dynasty 'white ware', much of it engraved with the same motifs that appear on the contemporary bronze ritual vessels. He includes this type, by inference at least, in his grey pottery period. Many authorities suspect that the 'Shang white ware' pertained more particularly to the ruling class of the day. In point of time, at all events, it was associated with a whole group of new culture-traits, including the growing of wheat, the casting of bronze (though not yet of bronze swords), and the use of the horse-drawn chariot, all of which appeared in China about or perhaps shortly after the beginning of the second millennium B.C.

There is an oversight in the mention (p. 6 and *cf.* also p. 71) of Dr Li Chi's and Professor P. L. Yüan's expedition to Shansi province in 1926. Mr Wu has here omitted to state that it was undertaken at the behest of the Freer Gallery of Art of the Smithsonian Institution, by which organization Dr Li was then employed.

The foregoing paragraphs are in no sense intended to detract from the really great value of the book. As an accurate and objective description of the various forms of pottery found on early Chinese sites, it is, in my opinion, among the best that have thus far appeared. C. W. BISHOP.

THE ARCHAEOLOGY OF CRETE: an introduction. *By* J. D. S. PENDLEBURY. *pp.* XXXII, 400, *with* 43 *plates*, 24 *maps*, *Methuen*, 1938. 30*s*.

This book deserves the highest praise. It has long been badly wanted and it will remain a standard work for many years. Mr Pendlebury has set methodically to work to give archaeologists all the information that it is possible to collect about the island and its history from Neolithic to Roman times. His method is to deal with each archaeological period in turn, illustrating it with a distribution-map and a gazetteer-list of sites and finds of that period. That is a very great convenience for the research worker. It is a matter of moments only to lay his hand on the information he is seeking. No praise can be too high for such a careful and exceedingly painstaking list of sites. Future excavators will find them invaluable.

The author sketches the main characteristics of each period. The Neolithic age begins in an already advanced state of development. It was not indigenous, but shows strong Anatolian affinities, and some Egyptian connexions. No contact with the nearer Greek mainland is perceptible. The fantastically early date often given to the first arrival of the Neolithic settlers is here brought down to ' a few centuries before 4000 B.C.' at the earliest. Anatolian influence is more marked in the Early Minoan period, and settlements are near the sea. In Neolithic times life was precarious and dangerous, and settlements were in defended regions or well inland, in caves and rock-shelters. Mr Pendlebury views with sound scepticism the attempts to date E.M.I. from the occurrence of Egyptian hard stone vases which, as he says, are ' used for hundreds of years after their manufacture '. He also emphasizes the racial continuity of Cretans, and notes that ' from an anthropological point of view there is no evidence from E.M.I. to L.M.III that any change of racial type took place '.

In M.M.I come the first elements of the great palaces and the beginning of Minoan civilization properly so called. We are shown in detail the advances of all the arts and crafts, of architecture and of culture as a whole. Admirable design-charts show the most popular decorative motifs of each age.

With L.M.II the story of the greatness of the Minoan world comes to an end. The catastrophe is complete, and Crete continues its life as an appanage of the Mycenaean world, finally sinking once more into barbarism, with petty chiefs living in rock castles defending themselves as they can. Writing and the arts have long perished. The palaces remain in ruins unvisited because of some *tabu* that surrounded them. Crete is ' almost completely cut off from intercourse with the world outside the Aegean ' and life is almost identical with what it was some 3000 years before in the Neolithic age.

Such is the cycle of Cretan history, a complete unity in itself, admirable as a yard-measure for our study of Aegean and Levantine life as a whole. Mr

Pendlebury has carried out a most difficult and complicated task with the maximum of skill, and he has maintained a readable and lively style of writing throughout, so that the reader's interest never flags.

Naturally there are innumerable points that raise discussion in detail. The following occur to me as worth consideration. Mr Pendlebury adheres to the usual view that the Phaestos disk has an Anatolian origin. But his illustration (fig. 19, 1), shows an M.M.I seal with a female figure identical with those of the disk. And he omits reference to the Arkhalokhori inscribed axe which has an inscription very close to the Phaestos signary. There is also the Mallia stone inscription (Marinatos, *Arch. Anz.* 1937, p. 230) also omitted, which provides further evidence for a special hieratic script of which the Phaestos disk is probably an instance.

The Mallia broadsword (p. 164 and 272) is noted as an unusual type of weapon. It certainly has no parallel. Hall's explanation of it as a proto-Shardana weapon should have been mentioned, for Mr Pendlebury has no alternative to offer. The Marseilles oenochoe (p. 223) can hardly be described as the ' most beautiful vase ever made in Crete '. Its spiritual and artistic home is the Great Exhibition of 1851. The inscription on the silver bowl from Shamra (p. 225), here called Minoan, is called Cypriot by Schaeffer.

The author does not think that earthquakes can cause fires in the cities they destroy (p. 228). But that is precisely what they do, by overturning lamps or ovens. The Dreros bronzes are dated too early by some fifty years. The best analogy is the Karlsruhe bronze.

The old Black Sea Trade mirage is produced again (p. 231). Troy kept no such trade to itself, but got rich on the tribute and transit fees of the peoples who moved across the Dardanelles from Europe to Asia and vice versa. There is not a tittle of proof that any Black Sea trade existed at all in the Bronze Age. The Argonauts alone suggest it : but they apparently came back no richer !

Mr Pendlebury's description of the dramatic fall of Cnossos and the evidence for the last king carrying out his last rites (p. 231) suggests comparison with the last mass at S. Sophia before that city fell to the Turks.

The most likely explanation of the mention of Dorians in Crete in the famous passage in Homer is that the main invasion was probably preceded by various preliminary reconnaissances during the hundred years before the main attack (p. 260).

Mr Pendlebury takes a firm line of his own. He is so well versed in Cretan archaeology and history and has so wide a knowledge of the island, that his own views deserve the greatest attention. For instance, he rejects the Minoan connexions of the Atchana pottery (p. 174). He believes in the Asiatic and not the Nilotic origins of Minoan culture. Both the original stock and the later

waves were all Anatolian (p. 279). He rejects the ' Blue Boy ' (p. 134) and proves his simian nature beyond doubt. His views on the overwhelming influence of Crete over the mainland are quite clear. ' So Minoised does the rest of the Aegean become that it is impossible for the present writer to avoid the conclusion that it was dominated politically by Crete ' (p. 225). He believes in a centralized empire that definitely ruled the mainland until the mainlanders turned on their masters and destroyed them. The fall of Cnossos and the other Cretan cities in L.M.II he attributes to a deliberate expedition from the mainland which came, destroyed and departed. His evidence for this view is convincing. He notes the curious lack of historical sense of the Cretan artist who never once records an event of note.

In short a very notable contribution to Minoan studies. And a particular word of praise for the series of photographs of typical sites of the different periods. The other plates are good and clear. Above all the maps are of great use. Published separately they would give a condensed history of Crete. Mr Pendlebury is to be warmly congratulated on an admirable piece of work.

S. CASSON.

CEMETERIES OF ARMANT I. *By* SIR ROBERT MOND *and* OLIVER H. MYERS. *Egypt Exploration Society, London*, 1937. 2 v., *pp.* XIII, 300 *and* 78 *plates*. 25*s*.

This work is a long, elaborate, and incredibly detailed publication of several seasons' work conducted by the Egypt Exploration Society's expedition in the desert to the northwest of the town of Armant in Upper Egypt, and deals mainly with the prehistoric remains encountered during those seasons. Three cemeteries, a number of scattered graves, and a settlement, all of the well known ' Predynastic ' type and all badly plundered, were excavated with great thoroughness, as were also two brick tombs of proto-dynastic date. Scattered over the desert were found several handfuls of potsherds and agate artifacts, which have been attributed to an undatable, but presumably very early, ' Saharan ' culture —a culture which is apparently traceable across north Africa as far west as Timbuctoo. In addition, there were discovered several sherds of Tasian and Badarian type (' Early Predynastic II and III '), some Old Kingdom and First Intermediate Period beads, two plundered tombs of the Middle Kingdom, and a quantity of fragmentary objects of the New Kingdom and Graeco-Roman Period, the latter including some Greek ostraka and some scraps of Coptic manuscripts.

The most interesting objects from the Predynastic graves are three plaques of painted gesso, which have been identified, with strong reservations, as either flags or model shields. There occurs to the reviewer the possibility that they

might be fans of the stiff, revolving type represented in Middle Kingdom coffins and in the tombs at Beni Hassan.

The bulk of the material laboriously extracted from the remains of the cemeteries of Armant is pretty commonplace stuff from any point of view, and the valiant efforts of the authors of the publication fail to make it otherwise—the fully quoted opinions and analyses of the fifty specialists consulted and the host of registers, statistical tables, diagrams, charts, and graphs, which the book contains, all adding up in the end to little of real importance to either the layman or the student. As an exposition of the super-scientific method of recording and publishing archaeological finds *Cemeteries of Armant* is most impressive. From the point of view of results achieved it is not.

This is no fault of Mr Myers and his collaborators, whose enthusiasm, care, knowledge, and astounding energy merit the greatest respect and admiration. In the parts of the book where these gentlemen permit themselves to break away from the Armant finds proper and deal with broader phases of Egyptian prehistory, they have much to contribute to our knowledge and understanding of the period. This is particularly true of the sections written by Mr Myers himself, and of the excellent essay on the flint industry contributed by Suliman Huzayyin Effendi.

WILLIAM C. HAYES.

LANGUAGE HUNTING IN THE KARAKORUM. *By* E. O. LORIMER. *George Allen and Unwin*, 1939. *pp.* 310, 24 *plates and map.* 12*s* 6*d.*

This book is an interesting record of day to day events. The specialist is advised by the author to consult the publications of her husband, Colonel Lorimer, for information regarding such topics as the origin of the people of Hunza and their language. The first five chapters are devoted to an account of the four years spent in Gilgit when Colonel Lorimer was the Political Agent there. It was during this period that the ' Language Hunting ' began. Shina ; Khowar, the language of the Chitral ; and Burushaski, which is unrelated to any other language alive or dead, were mastered and recorded, while some material concerning Wakhi, the language spoken in the highlands of Hunza by immigrants from Afghanistan, was also secured. The ability to speak to a native in his own tongue is a great advantage and the author relates how, when her husband made a short speech in Burushaski at a Durbar ' there was no mistaking the amazement and delight with which the Burushaski speakers heard their language for the first time on the lips of a white man '.

The next two chapters deal with the time spent in England following upon Colonel Lorimer's retirement, when his three-volume work on the Burushaski language was prepared for publication, and arrangements made for another trip

to Hunza for the further study of the people and their language. The Lorimers set sail in March 1934, ten years after the Colonel's retirement.

In part 2 of the book we are taken on the journey over the Burzil Pass to Gilgit and on to the beautiful valley of Hunza. The vivid descriptions of the author, aided by her excellent photographs, help one to realize the inaccessability and isolation of Hunza, the most northerly state of India abutting on Afghanistan and Chinese Turkestan.

The remaining two-thirds of the book are given up to an account of the fifteen months spent with the Burusho, a primitive self-supporting people with neither machines nor money. The beauty of the Karakorum and the daily life of the people of Hunza are well described. The author was particularly qualified to deal with the latter for she could converse with the Burusho in their own language and possessed the power of gaining their confidence and love. We are introduced to the family life and are shown the people working at their various crafts and on their terraced fields, irrigated by water brought from a glacier snout. We are told of the crops they grow, how they make a threshing floor, employ cattle or flails for threshing, and winnow by throwing the grain in the air. Many difficulties, such as living at a height of 7000 ft. with very little level land; lack of rainfall, timber and manure; meagre crops, great summer heat, biting winter cold, and springtime starvation, are shown to be suffered manfully by these happy people so manifestly loved by the author. It is interesting to note here that nearly all the photographs of people show smiling faces. J. W. PAGE.

EXCAVATIONS AT ASEA IN ARCADIA 1936–1938. Preliminary report by ERIK J. HOLMBERG (*Goteborgs Hogskolas Arsskrift* XLV, 1939). *pp.* 30 *and* 15 *plates.*

In a valley near the sources of the Eurotas and the Alpheios is a site at which Mr Holmberg made careful excavations which have materially added to our knowledge of neolithic Greece. He rightly observes that ' our knowledge of the Neolithic culture of southern Greece is so fragmentary that all contributions to our further understanding of it should be published as soon as possible '. And his publication is therefore the more welcome.

The excavations were carried out most scientifically, and the results are here admirably published. The author is to be congratulated on making a very considerable advance on our patchy knowledge of the period.

Asea was inhabited from the Neolithic period down to the Middle Helladic. From then it remained desolate until late Classical times. The Neolithic pottery all comes from habitational strata and no cemetery was found. Remains of dwellings and hearths were not recognizable except in the Helladic strata.

The pottery resembles but is not identical with that of the Neolithic strata of Corinth. Consequently Holmberg does not classify it according to the Corinthian classification of Weinberg. Actual Corinthian imports seem to appear in neolithic Asea, however, to make the distinction clear. A monochrome highly polished ware with a thick slip, and a burnished ware decorated with elaborate rectilinear patterns are the outstanding wares. The latter is, like so many Neolithic wares of Greece, of the highest technical competence. It is in close relation with the earliest Thessalian wares. At Asea there is no cultural break between the Neolithic and the Bronze Age. This is of the highest importance in view of the fact that elsewhere in the Peloponnese such a break is evident. The only cultural break at Asea is between the Early and the Middle Helladic. This is normal in the prehistory of Greece.

Asea will undoubtedly prove a type-site for Peloponnesian Neolithic. Small careful excavations such as these will solve the strange riddle of the origin of Neolithic culture in Greece. S. Casson.

HAITHABU, eine germanische Stadt der Fruhzeit. *By* Herbert Jankuhn. Zweite erweiterte Auflage. *Karl Wachholtz Verlag, Neumünster in Holstein,* 1938. *pp.* xii, 207, *with* 207 *illustrations and* 4 *plans.*

Economic as well as political factors contributed to the importance which Haddeby—or Haithabu as Dr Jankuhn prefers to call it—enjoyed for almost three centuries. Not only did it lie, like its more northerly counterpart Birka, at the junction of two important routes, but also for long periods of its history it occupied the unenviable position of a frontier town between two strongly opposed political worlds. These circumstances combined to produce first the merchant town and second the complicated system of frontier works which cross the narrowest part of the peninsula between the Schlei and the Trene. This new and enlarged edition of *Haithabu* supplies an interim survey of the historical and archaeological evidence, designed as much to show the results of the excavations which have been carried out intermittently since the 1880's, and with more regularity since 1930, as to define the many problems which further excavation may be expected to solve. The author has not confined himself immediately to Haithabu but has included much material of a more general kind. The work is well supplied with plans and illustrations, but there are one or two omissions. None of the several plans of the town show the sites of each season's excavations. The exact position of the cemeteries as well as of the houses uncovered in the different parts of the town can only be guessed, nor is there any means of determining how much of the town yet remains to be excavated. Again, the carefully drawn section shown in fig. 50 would have been made much more intelligible by the inclusion of an explanatory legend.

The occurrence of sherds of Rhineland *rollstempelkeramik* at Haithabu is the foundation of the author's argument that Göttrik's town of Sliesthorp lay on this site, since the same ware occurs at Krinkberg in Schleswig-Holstein in association with Carolingian coins of the end of the eighth century; but his identification of the Kograben with the defensive wall which Göttrik is known to have built at present rests only on circumstantial evidence. In spite of a disturbed modern history, the main rampart of the Danewerke revealed in section as many as eight or nine separate building periods. The original rampart of earth, fronted by a wooden palisade and beyond that a ditch, was heightened several times. Later the woodwork was displaced by a wall with a rubble core and facing-stones laid in herringbone fashion, and later still the rubble wall gave way to a brick wall. The last stage can certainly be assigned to Waldemar at some date between 1160 and 1182, while the absence of stonework from the rampart of Haithabu itself suggests that the rubble wall belongs to a later period than the town, perhaps to the time of Knud Lavard. The author sees in the wood and earth rampart the reflection of a period such as occurs in the tenth century, when, with the establishment of a Saxon colony at Haithabu by Henry I and the creation of Schleswig-Holstein as the northern march of Germany, Haithabu itself lay beyond the frontier and in foreign hands. These chronological divisions, which contrast with those originally proposed by Sophus Müller, as well as the elucidation of various smaller lengths of rampart, can only be established by further digging. The excavation of some building directly associated with the main rampart would help towards this end; and although none such appears yet to have been found, it is difficult to think that a frontier of this length can have been completely without intermediate stations which could be used for signalling, if for nothing else.

Direct access to the sea, combined with a measure of security against attack from that direction, are conditions which governed the position and plan of a number of Viking settlements in the Baltic area. Nothing precisely similar is known from the British Isles, but Speed's map of Dublin (1610) which shows the walls enclosing a semicircular area of which the Liffey forms the diameter, suggests that this town may offer a western parallel to the more northerly sites noted by the author. In general the rampart of Haithabu resembled the earth and wood stage of the main rampart of the Danewerke, but the seventh period marked the introduction of a more elaborate fortification with a double parapet, the inner one being raised slightly above the outer. The author compares this type of rampart with the walls of Constantinople and, rather boldly perhaps, ascribes its introduction at Haithabu to direct oriental influence. Evidence recovered from within the town itself throws valuable light on many problems connected with Viking-age houses. The woodwork has decayed in the higher

levels of the town, but in the lower levels the damp soil has preserved not only the foundations but also the lower stages of the house walls. One of the house types which seems to have been commonly in use in the town was an unpretentious, rectangular building, partly sunk below ground-level—a strong contrast with the hall or basilican type which is familiar from descriptions in the Icelandic sagas, as well as from excavation, and which is commonly regarded as the typical Viking house. The yield of small objects from Haithabu has so far been much less than from Birka, a circumstance which can be partly attributed to the stronger Christian element in the former. But in spite of this Dr Jankuhn has been able to draw a vivid picture of a thriving merchant town which Rimbert described in words remarkably similar to those used by Bede of London. In particular his survey of the pottery, in which he rejects the Frisian origin of the so-called ' Frisian ' jugs favoured by Arbman and other northern archaeologists, demonstrates its close relations with the Rhineland.

There are times when the author allows himself to speculate rather freely. His remarks on Haddeby church are to the point, but it is questionable whether any importance can be attached to the existence of one of the so-called *Schwertsleifsteine* in the walls of the church. Furthermore one cannot refrain from criticizing his comments on the runic inscription from the foundations of Schleswig cathedral, apparently the earliest monument so far recovered from the site of the modern Schleswig. The stone is ornamented in an 11th century style and was erected to the memory of Halfdan, Sulki's son, who died in England and was buried at Skia. Even if the suggested identification of Skia with Skidby in Yorkshire is correct, it scarcely follows that Halfdan was probably amongst those killed at the battle of Stamford Bridge in 1066. These criticisms, however, do nothing to lessen the value of Dr Jankuhn's contribution to Viking-age studies and it remains only to hope that further excavation will enable him to solve the many problems which he has himself propounded.

PETER HUNTER BLAIR.

LE TERREMARE delle provincie di Modena, Reggio Emilia, Parma, Piacenza. *By* GÖSTA SÄFLUND. Being no. 7 of the Acta of the Swedish Institute in Rome (agents, Gleerup, Lund or Harrassowitz, Leipzig). 1939. *pp.* 265 *and* 98 *plates.*

Those who have read my short article on this subject in ANTIQUITY for September 1939 will realize that the old theory of the Terremare as propounded by Pigorini and his school is completely dead. It is not so much for his further demonstration of this fact that we are grateful to Gösta Säflund, as for the facilities he now offers us for rebuilding a theory on a new and sounder basis. His volume consists of a critical digest of all the information to be derived from the

original publications, together with a well co-ordinated series of illustrations from the Italian museums. It is a complete corpus of material for the four provinces in question. With its careful tabulation and complete system of references it is everything that the student of this subject could desire.

Säflund, very wisely, writes in Italian, which enables him to incorporate numerous extracts from the Italian writers without marring the literary quality of his own composition. It may be remarked that he can write with equal success in German (*cf.* his articles in *Studí Etruschi*), and that his selected bibliography includes all the relevant works in English and French.

Only by great industry as well as ability could so satisfactory a survey have been produced. The original records are somewhat scattered and are frequently very deficient in precision and detail. Indeed it was only the resuscitation of Coppi's forgotten volumes on the terramara of Gorzano (Modena, 1871–6) which provided a reliable standard for judgments of stratification.

A terramara is defined by Säflund as ' a station containing the typical bronze-age culture of central and western Emilia '. He expressly rejects the additions which Pigorini made, *viz.*, that such stations are ritually orientated, erected on piles and laid out on the system of castrametation found later in Roman camps. That Pigorini adopted this view must be attributed to his excessive preoccupation with one or two sites like Castione, which are now seen to be exceptional and not typical. In the majority of terremare there is no evidence of pile-construction, and it is likely that in some cases the supposed piles of an imitation lake-dwelling were merely the uprights of wattle huts. For essentially a terremare is no more and no less than a village of huts. It is frequently erected on an elevated site where any waterfilled moat would be impossible and a rampart is often unnecessary ; only the peculiarities of a low-lying swampy station may render these additional features desirable.

Chronologically the sites here discussed range from the late Neolithic to the Early Iron Age. The flourishing time of the Terremare is in the Bronze Age, but not a few examples came down to the Iron Age, even to the Certosa period. There is no general or sudden abandonment of stations, but there is a gradual decline in prosperity as the Iron Age begins. Dating is established by the double evidence of typology and of stratification. The well-indexed plates make it possible to check and test every statement. Altogether a book to be warmly welcomed.

DAVID RANDALL-MACIVER.

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O.S. Leaflet No. **57**/38.

MAP OF BRITAIN IN THE DARK AGES

NORTH SHEET–SCALE 1:1,000,000

PUBLISHED BY THE
ORDNANCE SURVEY
SOUTHAMPTON

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Edited by

O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.

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